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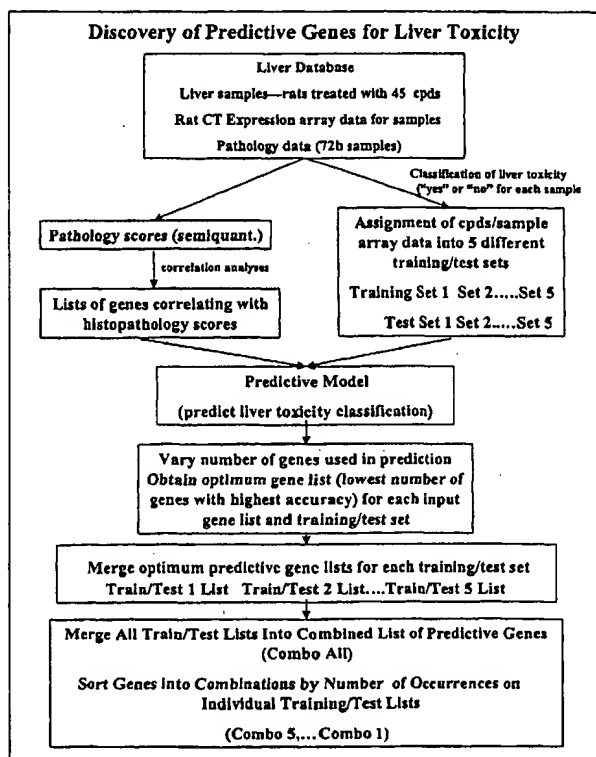
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[Continued on next page]

(54) Title: LIVER NECROSIS PREDICTIVE GENES



(57) Abstract: The invention provides toxicity predictive genes that can be used to predict toxicity in response to one more agents. The invention provides for a method of predicting the liver toxicity in an individual to an agent. The method comprises obtaining a biological sample from an individual treated with the agent. The expression of one or more liver toxicity predictive genes in the sample is measured, wherein the genes are selected from a group consisting of partial gene sequences of genes identified as responsive to agents causing liver necrosis. The process generates a test expression profile. The test expression profile is used with a set of reference expression profiles in a Predictive Model to determine whether the agent will induce liver toxicity in the individual.

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LIVER NECROSIS PREDICTIVE GENES

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Cross Reference to Other Patent Applications

- [01] This application claims priority to U.S. provisional application 60/369,287 filed 1 April 2002, which is hereby incorporated by reference in its entirety.

Reference to a Sequence Listing and Tables

- [02] This application contains a gene sequence listing and 4 tables submitted on a compact disc whose file name is "2874-022PCT" created on 1 April 2003 containing 4 files and is herein incorporated by reference in its entirety. The files are: a) Table 32.xls, 214KB, b) Table 34.xls, 525KB, c) Table 35.xls, 626KB, and d) Table 36.xls 576KB, all in Microsoft Excel™.
- [03] The contents of the files contained on the CD-ROM discs submitted with this application are hereby incorporated by reference into the specification.

Background

- [04] This invention is the field of toxicology. More specifically, it relates to toxicity predictive genes and the methods of using such genes to predict toxicity.
- [05] Molecular biology and genomics technologies have potential to create dramatic advances and improvements for the science of toxicology as for other biological sciences. See, for example, MacGregor, et al. *Fund. Appl. Tox.* 26:156-173, 1995; Rodi et al., *Tox. Pathology* 27:107-110, 1999; Cunningham et al., *Ann. N.Y. Acad. Sci.* 919: 52-67, 2000; Pritchard et al., *Proc. Natl. Acad. Sci. USA* 98:13266-13271, 2001; and Fielden and Zacharewski, *Tox. Sciences* 60: 6-10, 2001. The advantage of these technologies is that they can provide massive amounts of

parallel information and that this information concerns processes and events occurring at the molecular level. This level of information is in dramatic contrast to conventional safety assessment toxicology that, to a large extent, currently relies on subjective evaluation (e.g., in-life observations of behavior, observations of gross abnormalities at necropsy and histopathological examination of stained tissue slides using a microscope). These current methodologies may be largely subjective and in some cases such as histopathological evaluation, they require someone with a high degree of training, experience and skill to make competent evaluations. Furthermore, many of the methodologies require access to organs and tissues that necessitates either killing laboratory animals or surgery to obtain tissue specimens.

[06] Recently, there have been some initial efforts to apply molecular biology and genomics technologies to toxicology. Some efforts have involved application of gene expression measurements. See, for example, U.S. Patent 6,228,589 and WO 01/05804. Analysis of the data has yielded interesting observations of gene expressions that appear to correlate with some toxic effects or mechanisms. See, for example, Mueller et al. *Environmental Health Perspectives* 106(5): 277-230 (1998). However, there has been very little published work in toxicology so far that applies rigorous analytical and statistical techniques to the massive amounts of data available from genomics technologies. The observations, so far, have tended to be phenomenological and focused on individual gene responses rather than determining the generally applicable capabilities of patterns of gene expression to predict toxic effects (see, for example, studies of gene expression altered by exposure to toxicants in Bartosiewicz et al., *Environ health Perspectives* 109:71-74, 2001; Huang et al., *Tox. Sciences* 63: 196-207, 2001). Even in the larger field of biological sciences, these types of analyses are just beginning to be evidenced in the literature (e.g., Golub et al., *Science* 286: 531-537, 1999).

[07] U.S. Patent Number 6,228,589 (Brenner) shows a method for assessing the toxicity of a compound in a test organism by measuring gene expression profiles of selected tissue.

[08] Recently some work has been published that attempts to correlate gene expression profiles with the mechanism of toxicity of various hepatotoxins. See for example, Waring et al. *Tox. and Appl. Pharm.* 175:28-42 (2001). However there has been limited success thus far in the attempts to predict toxicity of compounds based on the gene expression profiles elicited upon treatment.

[09] What is needed are genes and predictive models, which are capable of predicting toxicity response.

Summary

[10] The invention provides toxicity predictive genes and predictive models that are useful to predict toxic responses to one or more agents.

[11] One aspect of the present invention provides methods of predicting toxicity in an individual to an agent. One method includes the steps of: (a) obtaining a biological sample from an individual treated with the agent or treating a biological sample obtained from an individual with the agent or treating *in vitro* cultured cells or explants with the agent; (b) obtaining a gene expression profile on one or more of the toxicity predictive genes disclosed herein from the biological sample or *in vitro* cultured cells or explants; and (c) using the gene expression profiles from the biological sample or cells treated with the agent as a test set and a database of gene expression profiles and toxicity classifications as a training set and using toxicity predictive genes and a Predictive Model to assay whether the agent will induce liver toxicity in the individual or would be predicted to produce liver toxicity following *in vivo* exposure.

[12] Another aspect of the present invention provides that the predictive model utilizes expression profiles from sets of toxicity predictive gene(s) selected from Combination 5, *infra*, wherein the set is one or more toxicity predictive gene(s). In other aspects, the predictive model utilizes expression profiles from sets of one or more toxicity predictive gene(s) selected from Combination 4, 3, 2, or 1, wherein the

set is one or more toxicity predictive gene(s).

[13] Yet another aspect of the present invention provides methods for determining the presence or absence of a no-observable effect level (NOEL) of an agent in an individual. One method includes the steps of: (a) obtaining biological samples from individuals treated with the agent at different dose levels or treating a biological sample obtained from, an individual with different dose levels of the agent or treating a biological sample obtained from an individual with different dose levels of the agent or treating *in vitro* cultured cells or explants with different dose levels of the agent; (b) obtaining gene expression profiles of the samples; and (c) using the gene expression profile from the biological samples as a test set and a database of gene expression profiles and toxicity classifications as a training set and using toxicity predictive genes and a Predictive Model to determine or predict whether and at which dose levels the agent will induce toxicity.

[14] Another aspect of the present invention provides that the predictive model utilizes sets of toxicity predictive gene(s) selected from Combination 5, wherein the set is one or more toxicity predictive gene(s). In other aspects, the predictive model utilizes sets of toxicity predictive gene(s) selected from Combination 4, 3, 2, or 1, wherein the set is one or more toxicity predictive gene(s).

[15] A further aspect of the present invention provides that the predictive genes and models may be used with an *in vitro* system to identify *in vitro* systems that can be used to accurately predict *in vivo* toxicity and to use the identified *in vitro* systems to accurately predict *in vivo* toxicity.

[16] Another aspect of the present invention provides methods of identifying toxicity predictive genes. One method includes the steps of: (a) providing a set of candidate toxicity predictive genes; (b) evaluating the genes for their predictive performance with at least one training and test set of data in a Predictive Model to identify genes which are predictive of toxicity; and (c) testing the performance of predictive genes for their ability to predict toxicity for different training and test sets of

data, for prediction of accurate compared to random classification and prediction of test data external to the data used to derive the predictive genes. A further embodiment provides the candidate toxicity predictive genes are rat toxicity genes.

[17] Yet another aspect of the present invention provides a computer-based method for mining genes predictive for toxicity. One method includes the steps of collecting expression levels of a plurality of candidate toxicity predictive genes in a multiplicity of samples; optionally storing the expression levels as a database on an electronic medium; defining a group of samples to be a training set; defining another group of samples to be a test set; optionally generating additional training and test sets; and selecting a set of genes which are predictive of toxicity based on evaluating the training set and the test set in a Predictive Model.

[18] In another aspect, the invention provides a computer program product for predicting toxicity that includes a set of toxicity predictive genes derived from mining a database having a plurality of gene expression profiles indicative of toxicity. In a further aspect, the set of toxicity predictive genes includes at least one toxicity predictive gene from combination 5, 4, 3, 2, or 1 list.

[19] In another aspect, the invention provides a library of expression profiles of toxicity predictive genes produced by the methods disclosed herein.

[20] In another aspect, the invention provides an integrated system for predicting toxicity including equipment capable of measuring gene expression profiles of toxicity predictive genes from biological samples exposed to a test agent, operably linked to a computer system capable of implementing a predictive model.

Brief Description of the Drawings

[21] **Figure 1** is a flow diagram illustrating one embodiment of the present invention for identification of toxicity predictive genes.

[22] **Figure 2** is a flow diagram illustrating one embodiment of the present

invention for evaluating performance of toxicity predictive genes.

[23] **Figure 3** is a flow diagram illustrating one embodiment of the present invention for using toxicity predictive genes to predict toxicity.

[24] **Figure 4** is a graph that illustrates one embodiment of the present invention showing the percent of overall correct calls as a function of number of predictor genes—histopathology correlating genes (Pearson correlation measure) with training and test set 3. The percent of overall correct calls is presented as a function of the number of predictor genes. The input genes list was a list of 61 genes that correlated with histopathology scores using Pearson's correlation measure (r -value >0.45). Training and Test Set 3 was used with other model values of 10 nearest neighbors and a p-value ratio cutoff of 0.5. An optimum gene number of 9 was observed (lowest number of genes giving the highest percent overall calls) for this case.

[25] **Figure 5** is a graph that illustrates K Means and Tree Clustering for Combo 5, 4, 3, 2 Genes. Cluster patterns are shown for an 8 cluster analysis of predictive genes from the Combo 5, 4, 3, and genes that corresponds to one embodiment of the invention. The individual genes located in each of the 8 clusters are presented in Table 30.

Brief Description of the Tables

[26] Table 1 lists compounds, dose levels, pathology and abbreviations in the database in accordance with one embodiment of the present invention.

[27] Table 2 lists distribution of compounds in individual training and test sets for 24 hour data in accordance with one embodiment of the present invention.

[28] Table 3 lists genes whose expression at 24 hour directly correlates with necrosis at 72 hour, ranked by Pearson correlation coefficient in accordance with one embodiment of the present invention.

- [29] Table 4 lists genes whose expression at 24 hour inversely correlates with necrosis at 72 hour, ranked by Spearman correlation coefficient in accordance with one embodiment of the present invention.
- [30] Table 5 lists predictive genes for 24 hour expression data in accordance with one embodiment of the present invention.
- [31] Table 6 lists randomly selected gene subsets from 24 hour Combo All gene set in accordance with one embodiment of the present invention.
- [32] Table 7 lists randomly selected gene subsets from 24 hour Combos 5, 4, 3 combined in accordance with one embodiment of the present invention.
- [33] Table 8 lists randomly selected gene subsets from 24 hour all excluding predictive genes (*i.e.*, excluding Combo All genes) in accordance with one embodiment of the present invention.
- [34] Table 9 lists toxicity individual sample prediction values for 24 hour data predictive genes (combined list and subsets) in accordance with one embodiment of the present invention.
- [35] Table 10 lists toxicity compound-dose prediction values for 24 hour data predictive genes (combined list and subsets) in accordance with one embodiment of the present invention.
- [36] Table 11 lists toxicity compound prediction values for 24 hour data predictive genes (combined list and subsets) in accordance with one embodiment of the present invention.
- [37] Table 12 lists individual gene predictions for Combo 5 in accordance with one embodiment of the present invention.
- [38] Table 13 lists individual gene predictions for Combo 4 in accordance with one embodiment of the present invention.

- [39] Table 14 lists individual gene predictions for Combo 3 in accordance with one embodiment of the present invention.
- [40] Table 15 lists toxicity compound-dose prediction values for 24 hour data with random gene subsets in accordance with one embodiment of the present invention.
- [41] Table 16 lists comparison of predictivity for correct toxicity classification and random classification using Combo gene sets and random subsets and 24 hour data in accordance with one embodiment of the present invention.
- [42] Table 17 lists distribution of compounds in individual training and test sets for 6 hour data in accordance with one embodiment of the present invention.
- [43] Table 18 lists genes whose expression at 6 hours directly correlates with hepatocellular necrosis at 72 hours, ranked by Pearson correlation coefficient in accordance with one embodiment of the present invention.
- [44] Table 19 lists genes whose expression at 6 hours inversely correlates with necrosis at 72 hours, ranked by Spearman correlation coefficient in accordance with one embodiment of the present invention.
- [45] Table 20 lists genes whose expression at 6 hours is predictive of toxicity at 72 hours in accordance with one embodiment of the present invention.
- [46] Table 21 lists toxicity compound-dose prediction values for 6 hour data predictive genes (combined list and subsets) in accordance with one embodiment of the present invention.
- [47] Table 22 lists comparison of predictivity for correct toxicity classification and random classification using combo gene sets 6 hour data in accordance with one embodiment of the present invention.
- [48] Table 23 lists distribution of compounds in individual training and test sets for 72 hour data in accordance with one embodiment of the present invention.

- [49] Table 24 lists genes whose expression at 72 hours directly correlates with necrosis at 72 hours, ranked by Pearson correlation coefficient in accordance with one embodiment of the present invention.
- [50] Table 25 lists genes whose expression at 72 hours inversely correlates with necrosis at 72 hours, ranked by Spearman correlation coefficient in accordance with one embodiment of the present invention.
- [51] Table 26 lists genes whose expression at 72 hours is predictive of toxicity at 72 hours in accordance with one embodiment of the present invention.
- [52] Table 27 lists toxicity compound-dose prediction values for 72 hour data predictive genes (combined list and subsets) in accordance with one embodiment of the present invention.
- [53] Table 28 lists comparison of predictivity for correct toxicity classification and random classification using combo gene sets 72 hour data in accordance with one embodiment of the present invention.
- [54] Table 29 lists prediction of toxicity for samples external to database in accordance with one embodiment of the present invention.
- [55] Table 30 lists K-means cluster analysis of combo 5, 4, 3 and 2 gene set in accordance with one embodiment of the present invention.
- [56] Table 31 lists RCT genes (ESTs) predictive for necrosis at 72 hours: best homology matches in accordance with one embodiment of the present invention.
- [57] Table 32 lists genes predictive for necrosis, sequences, and accession numbers in accordance with one embodiment of the present invention.
- [58] Table 33 lists hepatocellular necrosis predictive genes whose protein products are known to be secreted. The genes are from the table listing hepatocellular necrosis predictive genes at the three time points 6, 24 and 72 hours.

The protein products are easier to access since they are secreted into body fluids and are thus more amenable to be quantified. Therefore these proteins can be monitored in body fluids of subjects such as humans and toxicity predictions can be made.

[59] Table 34 lists expression data for the 6 hour timepoint in accordance with one embodiment of the present invention.

[60] Table 35 lists expression data for the 24 hour timepoint in accordance with one embodiment of the present invention.

[61] Table 36 lists expression data for the 72 hour timepoint in accordance with one embodiment of the present invention.

[62] Table 37 lists predictive performance of predictive genes organized by occurrence on training/test set lists (combo number) and time point in accordance with one embodiment of the present invention.

[63] Table 38 lists 266 liver toxicity predictive genes organized by time point and combo class in accordance with one embodiment of the present invention.

[64] Table 39 lists Liver Predictive genes that are predictive across all three time points in accordance with one embodiment of the present invention.

[65] Table 40 lists Liver Predictive genes that are most predictive across all three time points in accordance with one embodiment of the present invention.

Detailed Description

[66] One embodiment of the present invention provides for a method of predicting the liver toxicity in an individual to an agent. The method comprises obtaining a biological sample from an individual treated with the agent. The expression of one or more liver toxicity predictive genes in the sample is measured, wherein the genes are selected from a group consisting of partial gene sequences of genes identified as

responsive to agents causing liver necrosis. The process generates a test expression profile. The test expression profile is used with a set of reference expression profiles in a Predictive Model to determine whether the agent will induce liver toxicity in the individual.

[67] Another embodiment of the present invention provides for a method of predicting the liver toxicity of an agent. The method comprising using an in vitro system which comprises obtaining a biological sample from an in-vitro cultured cells or explants treated with the agent. The expression of one or more liver toxicity predictive genes in the sample is measured. The genes are selected from a group consisting of partial gene sequences of genes identified as responsive to agents causing liver necrosis. The process generates a test expression profile. The test expression profile is used with a set of reference expression profiles in a Predictive Model to determine whether the agent will induce liver toxicity in the individual.

[68] Yet another embodiment of the present invention provides for a process for predicting the liver toxicity in a biological sample from an individual, in-vitro cell cultures or explants to an agent via a programmable machine. The process comprises obtaining a biological sample treated with the agent. The expression of one or more liver toxicity predictive genes in the sample is measured. The genes are selected from a group consisting of partial gene sequences of genes identified as responsive to agents causing liver necrosis. The steps generate a test expression profile. The test expression profile is used with a set of reference expression profiles in a Predictive Model to determine whether the agent will induce liver toxicity in the individual.

[69] Still another embodiment of the present invention provides a computer program product for enabling a computer to perform Predictive Model analysis for liver toxicity on a biological sample from an individual, in-vitro cell cultures or explants to an agent. The computer program product comprises software instructions enabling the computer to perform predetermined operations, and a computer

readable medium embodying the software instructions. The pre-determined operations comprise measuring an expression of one or more liver toxicity predictive genes in a sample, wherein the genes are selected from a group consisting of partial gene sequences of genes identified as responsive to agents causing liver necrosis. A test expression profile is thus generated. The test expression profile is used with a set of reference expression profiles in a Predictive Model to determine whether the agent will induce liver toxicity in the individual.

[70] Yet a further embodiment of the present invention provides a Computer system adopted to predict liver toxicity in a biological sample from an individual, in-vitro cell cultures, or explants to an agent. The computer system comprising a processor and a memory including software instructions adapted to enable the computer system to perform operations. The software instructions comprising measuring the expression of one or more liver toxicity predictive genes in the sample, wherein the genes are selected from the group consisting of partial gene sequences of genes identified as responsive to agents causing liver necrosis, thereby generating a test expression profile; and using the test expression profile with a set of reference expression profiles in a Predictive Model to determine whether the agent will induce liver toxicity in the individual.

[71] A further embodiment of the present invention provides, a computer program product for predicting liver toxicity from a test sample expression profile. The computer program product comprises an encrypted training data set; encrypted lists of genes selected from genes predictive of liver toxicity to be used with the encrypted training data set, and a Predictive Model that uses the encrypted training data sets, the encrypted lists of genes, and the test sample expression profile to predict the liver toxicity of the test sample.

[72] Another embodiment of the present invention provides a method for mining genes predictive for liver toxicity. The method comprises collecting expression levels of a plurality of candidate toxicity predictive genes among a multiplicity of samples. A

group of samples are defined as a training set. Another group of samples are defined to be a test set. Optionally, additional training and test sets are generated. A set of genes which are predictive of liver toxicity are selected based on evaluating the training and test sets in a Predictive Model.

[73] This invention relates to methods of predicting whether an agent or other stimulus is capable of inducing toxicity in a recipient organism using predictive molecular toxicology analysis. In particular, the invention provides methods of predicting toxicity which comprise analyzing gene and/or protein expression profiles across a number of toxicity biomarkers disclosed herein for patterns of expression that are predictive of toxicity in the recipient organism. This type of toxicity is significant as a toxic effect of many chemical agents and is a significant component of adverse reactions to pharmaceuticals and drugs (see, for example, Treinen-Moslen, M. in Casarett and Doull's *Toxicology: The Basic Science of Poisons* Sixth Edition (C.D. Klaasen, ed.) Chapter 13, McGraw-Hill, New York, 2001). The invention is based, in part, upon the discovery that modulated transcriptional regulation of relatively small sets of certain genes in response to a test agent can accurately predict the occurrence of toxicity observed at later time points.

[74] Provided herein are multiple sets of toxicity biomarkers which are useful in the practice of the toxicity prediction methods of the invention. In particular, Applicants have identified 266 toxicity biomarkers that demonstrate utility in predicting toxicity outcomes. These biomarkers have been thoroughly characterized for their predictive performance, individually as well as in various combinations or subsets thereof. In addition, various optimized subsets of the toxicity biomarkers of the present invention are disclosed. These sets have also been thoroughly characterized for predictive performance using the methods of the invention. Among the subsets of toxicity genes provided herein are several which demonstrate prediction accuracies in the vicinity of 90%.

[75] The present invention is further described by way of the experimental

examples provided herein. These examples demonstrate that small sets of genes (*i.e.*, in some instances, as few as 1, 2 or 3 biomarker genes) are used to accurately predict toxicity. For example, as further described in the Examples, analysis of mRNA expression of only a few genes provides an accurate indication of whether a test agent will or will not induce toxicity.

[76] The predictive capacity of the methods of the invention have been verified by comparisons with random classifications, and data derived external to the database used to identify toxicity biomarkers. Moreover, the methods of the invention are capable of distinguishing between agent dose levels that induce toxicity (typically higher doses) and those doses that are non-toxic. This latter feature is an important component of meaningful toxicological evaluation.

[77] The practice of the present invention will employ, unless otherwise indicated, conventional techniques of molecular biology (including recombinant techniques), microbiology, cell biology, biochemistry, nucleic acid chemistry, and immunology, which are well known to those skilled in the art.. Such techniques are explained fully in the literature, such as, *Molecular Cloning: A Laboratory Manual*, second edition (Sambrook et al., 1989) and *Molecular Cloning: A Laboratory Manual*, third edition (Sambrook and Russel, 2001), (jointly referred to herein as "Sambrook"); *Current Protocols in Molecular Biology* (F.M. Ausubel et al., eds., 1987, including supplements through 2001); *PCR: The Polymerase Chain Reaction*, (Mullis et al., eds., 1994); Harlow and Lane (1988) *Antibodies, A Laboratory Manual*, Cold Spring Harbor Publications, New York; Harlow and Lane (1999) *Using Antibodies: A Laboratory Manual* Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY (jointly referred to herein as "Harlow and Lane"), Beaucage et al. eds., *Current Protocols in Nucleic Acid Chemistry* John Wiley & Sons, Inc., New York, 2000) and *Casarett and Doull's Toxicology The Basic Science of Poisons*, C. Klaassen, ed., 6th edition (2001).

[78] Unless otherwise defined, all terms of art, notations and other scientific

terminology used herein are intended to have the meanings commonly understood by those of skill in the art to which this invention pertains. In some cases, terms with commonly understood meanings are defined herein for clarity and/or for ready reference, and the inclusion of such definitions herein should not necessarily be construed to represent a substantial difference over what is generally understood in the art. The techniques and procedures described or referenced herein are generally well understood and commonly employed using conventional methodology by those skilled in the art, such as, for example, the widely utilized molecular cloning methodologies described in Sambrook et al., *Molecular Cloning: A Laboratory Manual* 2nd edition (1989) Cold Spring Harbor Laboratory Press, Cold Spring Harbor, N.Y. As appropriate, procedures involving the use of commercially available kits and reagents are generally carried out in accordance with manufacturer defined protocols and/or parameters unless otherwise noted.

[79] "Toxic" or "toxicity" refers to the result of an agent causing adverse effects, usually by a xenobiotic agent administered at a sufficiently high dose level to cause the adverse effects.

[80] As used herein, the terms "toxicity biomarker" and "toxicity predictive gene" are used interchangeably and refer to a gene whose expression, measured at the RNA or protein level can predict the likelihood of a toxicity response with accuracy significantly better than would occur by chance. toxicity response can be necrosis or any other toxicity manifestations that elicit similar detectable gene expression changes. These could include, but are not limited to, other forms of pathology such as centrilobular hepatocellular vacuolar degeneration, apoptosis, inflammation and cirrhosis.

[81] A "toxicological response" or "toxicity response" refers to a cellular, tissue, organ or system level response to exposure to an agent. At the molecular level, this can include, but is not limited to, the differential expression of genes encompassing both the up- and down-regulation of expression of such genes at the RNA and/or

protein level; the up- or down-regulation of expression of genes which encode proteins associated with response to and mitigation of damage, the repair or regulation of cell damage; or changes in gene expression due to changes in populations of cells in the tissue or organ affected in response to toxic damage.

[82] An "agent" or "compound" is any element to which an individual can be exposed and can include, without limitation, drugs, pharmaceutical compounds, household chemicals, industrial chemicals, environmental chemicals, other chemicals, and physical elements such as electromagnetic radiation.

[83] The term "biological sample" as used herein refers to substances obtained from an individual. The samples may comprise cells, tissue, parts of tissues, organs, parts of organs, or fluids (e.g., blood, urine or serum). Biological samples include, but are not limited to, those of eukaryotic, mammalian or human origin.

[84] "Sample" is defined for the purposes of prediction as a biological sample and the gene expression data for that sample. Each sample may come from an individual animal. A toxicity classification may also be associated with the sample.

[85] "Gene expression" as used herein refers to the levels of expression and/or pattern of expression of a gene.

[86] "Gene expression profile" refers to the levels of expression of multiple different genes measured for the same sample. Gene expression profiles may be measured in a sample, such as samples comprising a variety of cell types, different tissues, different organs, or fluids (e.g., blood, urine, spinal fluid, sweat, saliva or serum) by various methods including but not limited to microarray technologies and quantitative and semi-quantitative RT-PCR (e.g., Taqman™) techniques, as well as techniques for measuring expression of proteins.

[87] "Individual" refers to a vertebrate, including, but not limited to, a human, non-human primate, mouse, hamster, guinea pig, rabbit, cattle sheep, pig, chicken, and dog.

[88] As used herein, the terms "hybridize", "hybridizing", "hybridizes" and the like, used in the context of polynucleotides, are meant to refer to conventional hybridization conditions, such as hybridization in 50% formamide/6X SSC/0.1% SDS/100 µg/ml ssDNA, in which temperatures for hybridization are above 37 degrees Celsius and temperatures for washing in 0.1X SSC/0.1% SDS are above 55 degrees Celsius, and preferably to stringent hybridization conditions. The hybridization of nucleic acids can depend upon various factors such as their degree of complementarity as well as the stringency of the hybridization reaction conditions. Stringent conditions can be used to identify nucleic acid duplexes with a high degree of complementarity. Means for adjusting the stringency of a hybridization reaction are well known to those of skill in the art. See, for example, Sambrook, *et al.*, "Molecular Cloning: A Laboratory Manual," Second Edition, Cold Spring Harbor Laboratory Press, 1989; Ausubel, *et al.*, "Current Protocols In Molecular Biology," John Wiley & Sons, 1996 and periodic updates; and Hames *et al.*, "Nucleic Acid Hybridization: A Practical Approach," IRL Press, Ltd., 1985. In general, conditions that increase stringency (*i.e.*, select for the formation of more closely matched duplexes) include higher temperature, lower ionic strength and presence or absence of solvents; lower stringency is favored by lower temperature, higher ionic strength, and lower or higher concentrations of solvents.

[89] In the context of amino acid sequence comparisons, the term "identity" is used to express the percentage of amino acid residues at the same relative position that are the same. Also in this context, the term "homology" is used to express the percentage of amino acid residues at the same relative positions which are either identical or are similar, using the conserved amino acid criteria of BLAST analysis, as is generally understood in the art. Further details regarding amino acid substitutions, which are considered conservative under such criteria, are provided below.

[90] The toxicity biomarkers described herein were initially identified utilizing a database generated from large numbers of *in vivo* experiments, wherein the differential expression of approximately 700 rat genes, measured at various time

points, in response to multiple toxic compounds inducing various specific toxic responses, as visualized through microscopic histopathological analysis, was quantified, as described in pending United States Patent Application filed January 29, 2002 (serial number 10/060,893). This quantitative gene expression data, as well as corresponding histopathological information, were then subjected to an analytical approach specifically designed to identify genes which not only correlated with the observed histopathology, but also demonstrated an ability to be used in a model capable of accurately predicting the occurrence of the toxic response associated with the observed histopathology. A detailed description of an identification process is presented in the Examples.

[91] A flow diagram illustrating how the toxicity biomarkers of the invention were identified is illustrated in Figure 1. In addition to the database described and utilized herein, other toxicology gene expression databases may be generated, and used to identify additional toxicity biomarkers, which may also be employed in the practice of the toxicity prediction methods of the invention. Such databases may be generated with test compounds capable of inducing various pathologies indicative of a toxic response in the and/or other organs or systems, over different time periods and under different administration and/or dosing conditions, including without limitation necrosis, centrilobular hepatocellular vacuolar degeneration, apoptosis, inflammation and cirrhosis. An example of compounds, dose levels, toxicity classifications and histopathology scores used in the Examples that follow is provided in Table 1. Such databases may be generated using organisms other than the rat, including without limitation, animals of canine, murine, or non-human primate species. In addition, such databases may incorporate data derived from human clinical trials and post-approval human clinical experiences. Various methods for detecting and quantitating the expression of genes and/or proteins in response to toxic stimuli may be employed in the generation of such databases, as are generally known in the art. For example, microarrays comprising multiple cDNAs or oligonucleotide probes capable of hybridizing to corresponding transcripts of genes of interest may be used to generate gene expression profiles. Additionally, a number of other methods for detecting and

quantitating the expression of gene transcripts are known in the art and may be employed, including without limitation, RT-PCR techniques such as TaqMan®, RNase protection, branched chain, etc.

[92] Databases comprising quantitative gene expression information preferably include qualitative and quantitative and/or semi-quantitative information respecting the observed toxicological responses and other conventional toxicology endpoints, such as for example, body and organ weights, serum chemistry and histopathology observations, histopathology scores and/or similar parameters.

[93] For the purpose of identifying candidate predictive genes, the database preferably includes histopathology scores for each animal that has been exposed to one or more agent(s). These scores can be assigned based on actual histopathology observations for the tissue and animal or on the basis of effects observed for other animals treated with the same agent and dose level. The scores are numerical scores that reflect the occurrence and severity of histopathological changes. These scores can be adjusted to have similar range to gene expression changes. For example, a score of 1 could be assigned to samples with no changes and scores of 2-8 assigned to increasingly severe changes. Because the scores are numerical, they are suitable for use with a variety of statistical correlation and similarity measures.

[94] An example of a histopathology scoring system is provided in Example 1. Referring to Figure 1, histopathology scores may be utilized to identify genes which correlate with the observed toxicological response, using any number of statistical correlation and similarity analysis techniques, including without limitation those correlation or similarity measures described or employed in Example 1 (e.g., Pearson, Spearman, change, smooth, distance etc.). Such correlating genes may be used as predictive gene candidates. Examples of genes whose expression at 24 hours after treatment correlates with histopathology observed at 72h are detailed in Tables 3 and 4. In one embodiment, the correlating gene lists as well as the entire

array gene list are used as input gene lists in the GeneSpring™ Predictive Model (otherwise known hereafter as "Predictive Model").

[95] Statistical analysis of the database of gene expression profiles can be effected by utilizing commercially available software programs. In one embodiment, GeneSpring™ (Version 4.1, Silicon Genetics, Redwood City, CA) is used. Other software programs that can be used for statistical analysis are SAS software packages (SAS Institute Inc., Cary, NC) and S-PLUS® software (Insightful Corporation, Seattle, WA).

[96] Using GeneSpring™ software, class predictions can be made from the genes in the database, as detailed in Example 1, using one or more training and test sets. In one embodiment, five training sets and five test sets are obtained, as shown in Example 1 (Table 2). Toxicological classifications are entered for the samples in each training and test set. Toxicological classifications can be defined by various pathologies. In one embodiment, the toxicity is defined as necrosis observed 72 hours after treatment with an agent. However, toxicity can manifest in other pathologies such as centrilobular hepatocellular vacuolar degeneration, apoptosis, inflammation and cirrhosis.

[97] Once the training sets have been selected, then predicted classifications of the test set samples are obtained by using k-nearest neighbor (or *knn*) voting procedure. The class in which each of the *knn* is determined and the test sample is assigned to the class with the largest representation after adjusting for the proportion of classifications in the training set. In one embodiment, adjustments are made to account for different proportions of classes in the training set.

[98] Toxicity can also be observed at various time points after exposure to an agent and is not limited to only 72 hour after treatment. A skilled toxicologist can determine the optimal time after exposure to an agent to observe pathology by either what has been disclosed in the art or a stepwise experimentation with time increments, for example 2, 4, 6, 12, 18, 24, 36, 48 hours post-exposure or even

longer time increments, for example, days, weeks, or months after exposure to the agent.

[99] Figure 1 describes the overall process used to identify toxicity predictive genes. In one embodiment, this process was run independently for each time point.

[100] The number of genes that are to be used in the Predictive Model can be varied, for example 50, 40, 30, 20, 10, 5, 2, or 1 gene(s) can be used. In a preferred embodiment, at least 50 genes are used.

[101] An optimal gene list is generated that generates the best predictive accuracy with the lowest number of genes used. Figure 2 shows an exemplary profile for an optimal gene list.

[102] Another embodiment of the present invention provides optimum gene lists for all input gene lists are combined for each training and test set and then these combined lists for six training and test sets are merged to create an aggregate list of predictive genes. The aggregate list can then be subdivided to smaller lists of genes based on the number of times that the genes occurred on the predictive gene lists for an individual training or test set. These are designated herein as Combo 5, 4, 3, 2, or 1 lists. The genes that were predictive in 5 training and test sets are designated as Combo 5 and the genes that were predictive in 4 of 5 training and test sets are designated as Combo 4 and so forth. Table 32 presents gene names, accession numbers and sequence information for the toxicity predictive genes found by analysis of the database in the manner described above. Each of these genes has been demonstrated to contribute to predictive performance for at least one input gene list and training/test set and one time point. Table 38 lists the toxicity predictive genes organized by time point and Combo Class. Table 31 lists homologous genes for the RCT sequences that were identified by BLAST search using the GenBank NR database as the target database.

[103] The predictive genes can also be categorized by their occurrence as

predictive at different time points. Table 39 lists genes that are on the combined predictive lists of three time points tested. This list is derived from the list of the predictive genes measured at 6, 24 and 72 hours that predicted necrosis at 72 hours. Genes that are predictive at multiple time points can be further grouped by their Combo ranking. Table 40 lists genes that are the most predictive across the three time points tested. This list is a subset of the list of 9 genes that are predictive across three time points 6, 24 and 72 hours. The criteria for inclusion in this table were that the gene be a member of the highest combinations, viz., combinations 5 or 4 in at least 2 out of three time points. The gene expression data of the genes in Table 40 could be expected to be very highly predictive of necrosis. Further, since the predictive strength of these genes is very high across the 3 time points tested, it could be expected that gene expression data derived from these genes even at time points not tested such as any time points falling between 6 and 72 hours or any other time point would be very highly predictive of necrosis. These specific genes could be useful in cases where the dose route or pharmacokinetic properties of a compound may alter the kinetics of predictive gene expression changes.

[104] The predictive genes are evaluated for predictive performance as illustrated in Figure 2. For each gene list prediction, a table of data is generated using the Predictive Model which includes: the test set containing information about the actual call (*i.e.*, "yes" or "no" for toxicity), the predicted call (*i.e.*, "yes" or "no" for toxicity), and the P-value cutoff ratio. Expression data that can be used with the K-nearest neighbor model and predictive genes to enable one skilled in the art to make predictions are given in Tables 34-36.

[105] The combined list of predictive genes or alternatively, Combo 5, 4, 3, 2, or 1 list or subsets thereof is used as input into the Predictive Model. As an external verification of the predictive abilities of the genes found to be predictive for toxicity, random lists of genes may be generated and also used as input into the Predictive Model. Example 2 describes the evaluation of the predictive performance of the toxicity predictive genes.

- [106] Predictive performance may also be assessed using data from different time points after exposure to the agent. In one embodiment, 24 hour expression data is used. In another embodiment, 6 hour expression data is used, as described in Examples 3 and 4. In another embodiment, 72 hour expression data is used, as described in Example 5 and 6. As shown in Table 37, predictive capability for 24 hour expression data has a high accuracy rate (*i.e.*, 92% accuracy) when the entire predictive gene list is used.
- [107] Somewhat lower predictive accuracies were observed for the 6h and 72h data but the prediction was still quite significant. All of the combo lists as well as Combo All list had significantly higher accuracy than using random classifications.
- [108] Predictive performance may also be assessed using subsets of genes from the different Combo lists. As indicated in Examples 2, 4 and 6 randomly selected subsets of the Combo gene lists had very good predictive performance (accuracy better than 80% and approaching 90% and even individual genes had mean predictive accuracies that were significant (for example, greater than 80%). In one embodiment, using 5 genes from Combo All yields about 89% accuracy. Using different Combo lists may require a greater number of genes to reach the same accuracy level.
- [109] The toxicity predictive genes disclosed herein and toxicity predictive genes identified by using methods disclosed herein are useful for predicting toxicity in response to exposure to one or more agents.
- [110] The discovery that relatively small sets of different genes have predictive value permits flexible applications. The choice of how many and which genes to use can be tailored to a variety of different purposes. Very good predictivity is observed for sets of a few genes (for example, 24 hour Combo 5 which has only 3 genes had a mean prediction accuracy of about 90%). These small sets may be particularly advantageous in applications where measurement of only a few RNA species has considerable advantages in terms of sample processing logistics, speed and cost.

These applications would include relatively high throughput screens for predictive capability. An example of this would be an early screen using small samples of primary cells or cultured cell lines that can be processed with automated robotic equipment for treatment and isolation of RNA followed by efficient technologies for measuring expression of a few RNA species such as branched chain technology or RT-PCR.

[111] The use of larger numbers of predictive genes provides redundancy that may improve accuracy and precision. Applications using larger numbers of predictive genes might be tests of candidates at later stages of commercial development. An example would be later stages of preclinical development of a therapeutic candidate where *in vivo* samples can be obtained and more comprehensive methods such as microarray measurement of gene expression are appropriate. The larger gene sets can also include different subsets of genes which may offer more insight into potential mechanisms of toxicity and the ability to have refined predictions of long term toxic consequences such as chronic, irreversible toxicity or carcinogenicity.

[112] Some members of the toxicity predictive genes may also be suitable for prediction of toxicity in other organs or may be preferable for predicting toxicity for wider ranges of timepoints or treatment routes or regimens. As an example of the latter, some of the predictive genes are observed at three different timepoints after treatment. These genes may be useful for prediction in cases where the samples come from treatment protocols that have different measurement timepoints or routes of administration than those employed for the database used in the discovery of the predictive genes disclosed herein or where the toxicokinetics for a particular agent are known or suspected to be different from those in the database.

[113] In one embodiment, the agent is an agent for which no expression profile has been assessed or stored in the database or library. An animal, e.g., rat, is dosed with such an agent and the gene expression profile(s) is the test set for the Predictive Model. The training set which is used in the Predictive Model in this case can be the

entire database of sample array data because the test set data is not present in the database. As described in Example 8, the prediction can be made with accuracy without the use of histopathology scores as part of the input into the Predictive Model.

[114] In another embodiment the agent is an agent present in the database but is used at a different dose level or with a different treatment protocol than used in the database. The training set which is used in the Predictive Model in this case can be the entire database of sample array data because the test set data is not present in the database. As described in Example 8, the prediction can be made with accuracy without the use of histopathology scores as part of the input into the Predictive Model.

[115] In another embodiment, the exposure time of the agent is not 6, 24, or 72 hours or repeat dosing protocols are used. In this case, the skilled artisan can use the predictive toxicity genes from surrounding time points to extrapolate the predicted toxicity without undue experimentation. For example, if the individual has been exposed to the agent for 12 hours, then predictive genes from 6 and 24 hours timepoints are used as guidelines for extrapolating toxicity predictions.

[116] In another embodiment, the toxicity predictive genes and a predictive model can be used to determine the presence or absence of a no-observed toxicity effect level. An agent can be used at different treatment levels and expression profiles obtained for each treatment level. The predictive genes and predictive model can be used to determine which dose levels elicit a response that is predicted to be toxic and which dose levels are not toxic. In contrast to conventional endpoints for determining no-effect levels, the use of expression data, predictive genes and predictive models applies a number of quantitative endpoints and criteria instead of subjective endpoints and criteria. This permits more rigorous and precisely defined determination of no effect levels.

[117] In another embodiment, the toxicity predictive genes can be used to detect

toxic effects that may be manifested as long lasting or chronic consequences such as irreversible toxicity or carcinogenesis. The predictive genes and model can be applied to databases where classifications of training and test set samples are made with respect to actual or putative endpoints such as irreversible toxicity or carcinogenicity.

[118] In another embodiment, the predictive genes can be used in a variety of alternative models to predict toxicity. Some of these models do not require the direct use of data in a database but use functions or coefficients derived from the database. In another embodiment, the predictive genes and models may be used to evaluate *in vitro* systems for their ability to reflect *in vivo* toxic events and to use such *in vitro* systems for predicting *in vivo* toxicity. Expression profiles for predictive genes can be created from candidate *in vitro* assays using treatments with agents of known *in vivo* toxicity and for which *in vivo* data on gene expression are available. The expression data and predictive models of this invention can be used to determine whether the *in vitro* assay system has predictive gene expression responses that accurately reflect the *in vivo* situation. Large sets of predictive genes as described in this invention can be tested in such models for their suitability and performance with the candidate *in vitro* systems. This is a superior and novel tool for evaluating and optimizing *in vitro* systems for their ability to reflect and accurately predict *in vivo* responses.

[119] In another embodiment, the predictive genes and models may be used with an *in vitro* system to accurately predict *in vivo* toxicity. *In vitro* systems that have been evaluated and optimized as described in the previous embodiment are treated with test agents and expression profiles are measured for predictive genes. The expression profiles are used in conjunction with a predictive model to predict *in vivo* toxicity. In this embodiment, there can be considerable reduction in the use of laboratory animals. Additionally the application of this embodiment to *in vitro* human systems can provide a unique capability to accurately predict human toxic responses without human *in vivo* exposure or treatment.

- [120] In another embodiment, measurement of the expression levels of the proteins encoded by the predictive genes can be used in conjunction with predictive models to predict toxicity. Among the full set of toxicity predictive genes are various genes known to encode cell surface, secreted and/or shed proteins. This enables the development of methods for predicting toxicity using protein biomarkers. For example, as disclosed in Table 33, there are 19 genes in the master predictive set which are known to encode secreted proteins. Thus, in another aspect of the present invention, toxicity predictive assays that detect the expression of one or more of said predictive proteins are developed. Such assays have several advantages, such as:
- [121] Ability to use archived tissue specimens such as preserved or embedded tissues that are not suitable for measurement of RNA expression.
- [122] Ability to examine predictive protein expression in tissue slides using *in situ* labeling and microscopic observation. This is useful for detecting predictive toxicity signals occurring in very small sub-populations of cells.
- [123] Ability to detect protein markers in specimens that can be readily obtained with little or no invasiveness (e.g., blood, urine, sweat, saliva).
- [124] Reduction in animal use in laboratory studies such that no sacrifice of animals necessary to obtain tissue specimens when toxicity prediction can be made with specimens that can be obtained without animal sacrifice or surgery.
- [125] Application for human use where tissue specimens cannot be obtained or are only obtained with great difficulty.
- [126] In another embodiment, the identified predictive genes can be considered as potential therapeutic targets when the genes are involved in toxic damage or repair responses whose expression or functional modification may attenuate, ameliorate or eliminate disease conditions or adverse symptoms of disease conditions.
- [127] In another embodiment the predictive genes can be organized into clusters of

genes that exhibit similar patterns of expression by a variety of statistical procedures commonly used to identify such coordinately expression patterns. Common functional properties of these clustered genes can be used to provide insight into the functional relationship of the response of these genes to toxic effects. Common genetic properties of these genes (e.g., common regulatory sequences) may provide insight into function aspects by revealing known or novel similarities in the coding region of the genes. The presence of common known or novel signal transduction systems that regulate expression of the genes can also lead to insight as to the functional properties of the genes. The presence of common known or novel regulatory sequences in the identified predictive genes can also be used to identify toxicity predictive genes that are not present in the current Rat CT array. This can be accomplished by someone skilled in the art who can analyze sequence databases for common regulatory sequences.

[128] In yet another embodiment, the toxicity predictive genes can be used to predict toxicity responses in other species, for example, human, non-human primate, mouse, hamster, guinea pig, hamster, rabbit, cattle, sheep, pig, chicken, and dog. Some members of the toxicity predictive genes may also be more suitable for prediction of toxicity in species other than the species used to derive the database (rat in the case of the examples provided). One method for identification of such genes is that would be available to someone skilled in the art would be to examine DNA sequence databases to determine whether orthologous sequences to the predictive genes exist in the target species and how close the orthologous sequences are to the predictive gene sequences. One of skill in the art can examine the orthologous sequences for similarity in amino acid coding regions and motifs as well as for similarities in regulatory regions and motifs of the gene.

[129] In another embodiment, necrosis predictive genes or gene sequences are used for screening other potential toxicity predictive genes or gene sequences in other species or even within the same species using methods known in the art. See, for example, Sambrook *supra*. Gene sequences that hybridize under stringent

conditions to the toxicity predictive gene sequences disclosed herein may be selected as potential toxicity predictive genes. Additionally, genes which demonstrate significant homology with the toxicity predictive genes disclosed herein (preferably at least about 70%) may be selected as toxicity predictive gene candidates. It is understood that conservative substitutions of amino acids are possible for gene sequences that have some percentage homology with the necrosis predictive gene sequences of this invention. A conservative substitution in a protein is a substitution of one amino acid with an amino acid with similar size and charge. Groups of amino acids known normally to be equivalent are: (a) Ala, Ser, Thr, Pro, and Gly; (b) Asn, Asp, Glu, and Gln; (c) His, Arg, and Lys; (d) Met, Glu, Ile, and Val; and (e) Phe, Tyr, and Trp.

[130] It is understood that the predictive toxicity genes can be used as guides to predicting toxicity for agents that have been administered via different routes (intraperitoneal, intravenous, oral, dermal, inhalation, mucosal, etc.) from the routes that were used to generate the database or to identify the toxicity predictive genes. Furthermore, the invention is not intended to be limiting to agents that have been administered at different dosages than the agents that were used to generate the database or to identify the predictive toxicity genes.

[131] Data described in the examples were generated using the microarray technology disclosed in the Examples. However, the invention is not dependent on using this particular platform. Other similar gene expression analysis technologies may be incorporated in the practice of this invention. These can include, but are not limited to, other arrays containing the predictive genes, RT-PCR (e.g., TaqMan®), branched chain technology, RNase protection or any other method which quantitatively detects the expression of RNA polynucleotides. The invention can be practiced using these other technologies by generating a database of expression measurements for the predictive genes using samples such as those used in the database described in Example 1. This database can then be used in a model such as the K-nearest neighbor model or can be used to develop any of a number of other

models.

- [132] The following Examples are provided to illustrate but not to limit the invention in any manner.
- [133] Example 1
- [134] Database of Compounds and Toxicity: Compounds and treatments list used to construct a database are given in Table 1. This table also provides evaluation of the toxicity observed as necrosis in samples collected 72 hours after treatment.
- [135] Database of Animal Experiments: Sprague Dawley rats Crl:CD from Charles River, Raleigh, NC were divided into treated rats that receive a specific concentration of the compound (see Table 1) and control rats that only received the vehicle in which the compound is mixed (*e.g.*, saline).
- [136] At specified timepoints (6h, 24h and 72h) after administration (intraperitoneal route) of the compound, a set number of rats (usually 3 control and 3 treated) were euthanized and tissues collected. Each rat was heavily sedated with an overdose of CO₂ by inhalation and a maximum amount of blood drawn. Exsanguination of the rat by this drawing of blood kills the rat. The method of collecting the tissues is very important and ensures preserving the quality of the mRNA in the tissues. The body of the rat was then opened up and prosectors rapidly removed the tissues (including) and immediately placed them into liquid nitrogen. The organs/tissues were frozen within 3 minutes of the death of the animal to ensure that mRNA did not degrade. The organs/tissues were then packaged into well-labeled plastic freezer quality bags and stored at -80 degrees until needed for isolation of the mRNA from a portion of the organ/tissue sample.
- [137] Isolating DNA/RNA from animal tissues or cells: Total RNA was isolated from tissue samples using the following materials: Qiagen RNeasy midi kits, 2-mercaptoethanol, liquid N₂, tissue homogenizer, dry ice Samples were kept on ice when specified.

- [138] If a tissue needed to be broken, then the tissue sample was placed on a double layer of aluminum foil which was then placed within a weigh boat containing a small amount of liquid nitrogen. The aluminum foil was folded around the tissue and then struck by a small foil-wrapped hammer to administer mechanical stress forces.
- [139] About 0.15-0.20 g of tissue was weighed out and placed in a sterile container. To preserve integrity of the RNA, tissues were kept on dry ice when other samples were being weighed. A RLT (Qiagen®) buffer was added to the sample to aid in the homogenization process. The tissue was homogenized using commercially available homogenizer (IKA Ultra Turrax T25 homogenizer) with the 7 mm microfine sawtooth shaft and generator (195 mm long with a processing range of 0.25 ml to 20 ml, item # 372718). After homogenization, samples were stored on ice until samples were homogenized. The homogenized tissue sample was spun to remove nuclei thus reducing DNA contamination. The supernatant of the lysate was then transferred to a clean container containing an equal volume of 70% EtOH in DEPC treated H₂O and mixed. RNA was isolated by putting the supernatant through an RNeasy spin column, washed, and subsequently eluted. Small quantities of remaining DNA were removed by use of DNase enzyme during the RNA isolation procedure following the instructions provided by Qiagen and alternatively by lithium chloride (LiCl) precipitation following the RNA isolation. The isolated RNA pellet was stored in Rnase-free water or in an RNA storage buffer (10 mM sodium citrate), Ambion Cat #7000. The RNA amount was then quantitated using a spectrophotometer.
- [140] Rat 700 CT chip: Gene expression data was generated from a microarray chip that has a set of toxicologically relevant rat genes that are used to predict toxicological responses. The rat 700 CT gene array is disclosed in pending U.S. applications 60/264,933; 60/308,161; and pending application filed on January 29, 2002 (serial number 10/060,893).
- [141] Microarray RT reaction: Fluorescence-labeled first strand cDNA probe was

made from the total RNA or mRNA isolated from s of control and treated rats. This probe was hybridized to microarray slides spotted with DNA specific for toxicologically relevant genes. The materials needed are: total or messenger RNA, primer, Superscript II buffer, dithiothreitol (DTT), nucleotide mix, Cy3 or Cy5 dye, Superscript II (RT), ammonium acetate, 70% EtOH, PCR machine, and ice.

[142] The volume of each sample that would contain 20µg of total RNA (or 2µg of mRNA) was calculated. The amount of DEPC water needed to bring the total volume of each RNA sample to 14 µl was also calculated. If RNA was too dilute, the samples were concentrated to a volume of less than 14 µl in a speedvac without heat. The speedvac must be capable of generating a vacuum of 0 Milli-Torr so that samples can freeze dry under these conditions. Sufficient volume of DEPC water was added to bring the total volume of each RNA sample to 14 µl. Each PCR tube was labeled with the name of the sample or control reaction. The appropriate volume of DEPC water and 8 µl of anchored oligo dT mix (stored at -20°C) was added to each tube.

[143] Then the appropriate volume of each RNA sample was added to the labeled PCR tube. The samples were mixed by pipeting. The tubes were kept on ice until samples are ready for the next step. It is preferable for the tubes to kept on ice until the next step is ready to proceed. The samples were incubated in a PCR machine for 10 minutes at 70°C followed by 4°C incubation period until the sample tubes were ready to be retrieved. The sample tubes were left at 4°C for at least 2 minutes.

[144] The Cy dyes are light sensitive, so any solutions or samples containing Cy-dyes should be kept out of light as much as possible (e.g., cover with foil) after this point in the process. Sufficient amounts of Cy3 and Cy5 reverse transcription mix were prepared for one to two more reactions than would actually be run by scaling up the following:

[145] For labeling with Cy3

8 ul 5x First Strand Buffer for Superscript II, 4 ul 0.1 M DTT, 2 ul Nucleotide Mix, 2 ul of 1:8 dilution of Cy3 (*e.g.*, 0.125mM cy3dCTP) and 2 ul Superscript II

[146] For labeling with Cy5

8 ul 5x First Strand Buffer for Superscript II, 4 ul 0.1 M DTT, 2 ul Nucleotide Mix, 2 ul of 1:10 dilution of Cy5 (*e.g.*, 0.1mM Cy5dCTP) and 2 ul Superscript II

[147] About 18 µl of the pink Cy3 mix was added to each treated sample and 18 µl of the blue Cy5 mix was added to each control sample. Each sample was mixed by pipeting. The samples were placed in a DNA engine (PTC-200 Petier Thermal Cycler, MJ Research) for 2 hours at 45°C followed by 4°C until the sample tubes were ready to be retrieved.

[148] In addition to the desired cDNA product, the RT reaction contained impurities that must be removed. These impurities included excess primers, nucleotides, and dyes. The primary method of removing the impurities was by following the instructions in the QIAquick PCR purification kit (Qiagen cat#120016).

[149] Alternatively, the RT reactions were cleaned of impurities by ethanol precipitation and resin bead binding. The samples from DNA engine were transferred to Eppendorf tubes containing 600 µl of ethanol precipitation mixture and placed in -80°C freezer for at least 20-30 minutes. These samples were centrifuged for 15 minutes at 20800 x g (14000 rpm in Eppendorf model 5417C) and carefully the supernatant was decanted. A visible pellet was seen (pink/red for Cy3, blue for Cy5). Ice cold 70% EtOH (about 1 ml per tube) was used to wash the tubes and the tubes were subsequently inverted to clean tube and pellet. The tubes were centrifuged for 10 minutes at 20800 x g (14000 rpm in Eppendorf model 5417C), then the supernatant was carefully decanted. The tubes were air dried for about 5 to 10 minutes, protected from light. When the pellets were dried, they were resuspended in 80 ul nanopure water. The cDNA/mRNA hybrid was denatured by heating for 5

minutes at 95°C in a heat block and flash spun. Then the lid of a "Millipore MAHV N45" 96 well plate was labeled with the appropriate sample numbers. A blue gasket and waste plate (v-bottom 96 well) was attached. About 160 µl of Wizard DNA Binding Resin (Promega cat#A1151) was added to each well of the filter plate that was used. Probes were added to the appropriate wells (80 µl cDNA samples) containing the Binding Resin. The reaction is mixed by pipeting up and down ~10 times. The plates were centrifuged at 2500 rpm for 5 minutes (Beckman GS-6 or equivalent) and then the filtrate was decanted. About 200 µl of 80% isopropanol was added, the plates were spun for 5 minutes at 2500 rpm, and the filtrate was discarded. Then the 80% isopropanol wash and spin step was repeated. The filter plate was placed on a clean collection plate (v-bottom 96 well) and 80 µl of Nanopure water, pH 8.0-8.5 was added. The pH was adjusted with NaOH. The filter plate was secured to the collection plate and after 5 minutes was centrifuged for 7 minutes at 2500 rpm.

[150] Purification of Cy -Dye Labeled cDNA: To purify fluorescence-labeled first strand cDNA probes, the following materials were used: Millipore MAHV N45 96 well plate, v-bottom 96 well plate (Costar), Wizard DNA binding Resin, wide orifice pipette tips for 200 to 300 µl volumes, isopropanol, nanopure water. It is highly preferable to keep the plates aligned at times during centrifugation. Misaligned plates lead to sample cross contamination and/or sample loss. It is also important that plate carriers are seated properly in the centrifuge rotor.

[151] The lid of a "Millipore MAHV N45" 96 well plate was labeled with the appropriate sample numbers. A blue gasket and waste plate (v-bottom 96 well) was attached. Wizard DNA Binding Resin (Promega cat#A1151) was shaken immediately prior to use for thorough resuspension. About 160 µl of Wizard DNA Binding Resin was added to each well of the filter plate that was used. If this was done with a multi-channel pipette, wide orifice pipette tips would have been used to prevent clogging. It is highly preferable not to touch or puncture the membrane of the filter plate with a pipette tip. Probes were added to the appropriate wells (80 µl cDNA

samples) containing the Binding Resin. The reaction is mixed by pipeting up and down ~10 times. It is preferable to use regular, unfiltered pipette tips for this step. The plates were centrifuged at 2500 rpm for 5 minutes (Beckman GS-6 or equivalent) and then the filtrate was decanted. About 200 μ l of 80% isopropanol was added, the plates were spun for 5 minutes at 2500 rpm, and the filtrate was discarded. Then the 80% isopropanol wash and spin step was repeated. The filter plate was placed on a clean collection plate (v-bottom 96 well) and 80 μ l of Nanopure water, pH 8.0-8.5 was added. The pH was adjusted with NaOH. The filter plate was secured to the collection plate with tape to ensure that the plate did not slide during the final spin. The plate sat for 5 minutes and was centrifuged for 7 minutes at 2500 rpm. Replicates of samples should be pooled.

[152] Dry-down Process: Concentration of the cDNA probes is preferable so that they can be resuspended in hybridization buffer at the appropriate volume. The volume of the control cDNA (Cy-5) was measured and divided by the number of samples to determine the appropriate amount to add to each test cDNA (Cy-3). Eppendorf tubes were labeled for each test sample and the appropriate amount of control cDNA was allocated into each tube. The test samples (Cy-3) were added to the appropriate tubes. These tubes were placed in a speed-vac to dry down, with foil covering any windows on the speed vac. At this point, heat (45°C) may be used to expedite the drying process. Samples may be saved in dried form at -20°C for up to 14 days.

[153] Microarray Hybridization: To hybridize labeled cDNA probes to single stranded, covalently bound DNA target genes on glass slide microarrays, the following material were used: formamide, SSC, SDS, 2 μ m syringe filter, salmon sperm DNA (Sigma, cat # D-7656), human Cot-1 DNA (Life Technologies, cat # 15279-011), poly A (40 mer: Life Technologies, custom synthesized), yeast tRNA (Life Technologies, cat # 15401-04), hybridization chambers, incubator, coverslips, parafilm, heat blocks. It is preferable that the array is covered to ensure proper hybridization.

[154] About 30 μ l of hybridization buffer was prepared per cDNA sample (control rat cDNA plus treated rat cDNA). Slightly more than is what is needed should be made since about 100 μ l of the total volume made for hybridizations can be lost during filtration.

[155]	Hybridization Buffer:	for 100 μ l:
	• 50% Formamide	50 μ l formamide
	• 5X SSC	25 μ l 20X SSC
	• 0.1% SDS	25 μ l 0.4% SDS

[156] The solution was filtered through 0.2 μ m syringe filter, then the volume was measured. About 1 μ l of salmon sperm DNA (10mg/ml) was added per 100 μ l of buffer.

[157] Alternatively, the hybridization buffer was made up as:

Hybridization Buffer:	for 101 μ l:
• 50% Formamide	50 μ l formamide
• 10X SSC	50 μ l 20X SSC
• 0.2% SDS	1 μ l 20% SDS

[158] The solution was filtered through 0.2 μ m syringe filter, then the volume was measured. One microliter of salmon sperm DNA (9.7mg/ml), 0.5 μ l Human Cot-1 DNA (5 μ g/ μ l), 0.5 μ l poly A (5 μ g/ μ l), 0.25 μ l Yeast tRNA (10 μ g/ μ l) was added per 100 μ l of buffer. The hybridization buffers were compared in validation studies and there was no change in differential gene expression data between the two buffers.

[159] Materials used for hybridization were: 2 Eppendorf tube racks, hybridization chambers (2 arrays per chamber), slides, coverslips, and parafilm. About 30 μ l of

nanopure water was added to each hybridization chamber. Slides and coverslips were cleaned using N₂ stream. About 30 µl of hybridization buffer was added to dried probe and vortexed gently for 5 seconds. The probe remained in the dark for 10-15 minutes at room temperature and then was gently vortexed for several seconds and then was flash spun in the microfuge. The probes were boiled or placed in a 95 °C heat block for 5 minutes and centrifuged for 3 min at 20800 x g (14000 rpm, Eppendorf model 5417C). Probes were placed in 70 °C heat block. Each probe remained in this heat block until it was ready for hybridization.

[160] About 25 µl was pipeted onto a coverslip. It is highly preferable to avoid the material at the bottom of the tube and to avoid generating air bubbles. This may mean leaving about 1 µl remaining in the pipette tip. The slide was gently lowered, face side down, onto the sample so that the coverslip covered that portion of the slide containing the array. Slides were placed in a hybridization chamber (2 per chamber). The lid of the chamber was wrapped with parafilm and the slides were placed in a 42°C humidity chamber in a 42°C incubator. It is preferable to not let probes or slides sit at room temperature for long periods. The slides were incubated for 18-24 hours.

[161] Post-Hybridization Washing: To obtain only single stranded cDNA probes tightly bound to the sense strand of target cDNA on the array, non-specifically bound cDNA probe should be removed from the array. Removal of non-specifically bound cDNA probe was accomplished by washing the array and using the following materials: slide holder, glass washing dish, SSC, SDS, and nanopure water. Six glass buffer chambers and glass slide holders were set up with 2X SSC buffer heated to 30-34°C and used to fill up glass dish to 3/4th of volume or enough to submerge the microarrays. The slides were placed in 2X SSC buffer for 2 to 4 minutes while the cover slips fall off. The slides were then moved to 2X SSC, 0.1% SDS and soaked for 5 minutes. The slides were transferred into 0.1X SSC and 0.1% SDS for 5 minutes. Then the slides are transferred to 0.1X SSC for 5 minutes. The slides, still in the slide carrier, were transferred into nanopure water (18 megaohms) for 1

second. To dry the slides, the stainless steel slide carriers were placed on micro-carrier plates and spun in a centrifuge (Beckman GS-6 or equivalent) for 5 minutes at 1000 rpm.

[162] Scanning slides: The washed and dried hybridized slides were scanned on Axon Instruments Inc. GenePix 4000A MicroArray Scanner and the fluorescent readings from this scanner converted into quantitation files (.gpr) on a computer using GenePix software.

[163] Array Data, Normalization and Transformation: GeneSpring™ software (Version 4.1, Silicon Genetics) was used for statistical analyses including identification of genes expressions correlating with histopathology scores, K-means and tree cluster analysis, and predictive modeling using the K-means nearest neighbor (Predict Parameter Values tool).

[164] Microarray data were loaded into GeneSpring™ software for analysis as GenePix files as above. Specific data loaded into GeneSpring™ software included gene name, GenBank ID control channel mean fluorescence and signal channel mean fluorescence. Expression ratio data (ratio of signal to control fluorescence) were normalized using the 50th percentile of the distribution of genes and control channel. Ratio data were excluded from analysis if the control channel value was <0. For analysis of correlations and predictive values gene expression ratios were transformed as the log of the ratio.

[165] Correlation with Histopathology Scores: Histopathology scores for each animal (assigned on a compound-dose basis as indicated in Table 1) were entered with gene expression data by using the GeneSpring™ 'Drawn Gene' function. Correlations between the histopathology scores and gene expression were conducted with the distance measures listed below:

standard	positive and negative correlation
smooth	positive and negative correlation

change	positive correlation
upregulated	positive correlation
Pearson	positive and negative correlation
Spearman	positive and negative correlation
distance	positive correlation

[166] These correlation or similarity measures are standard statistical correlation measures that are described in the GeneSpring Advanced Analysis Techniques Manual (Release Data March 13, 2001, Silicon Genetics). Where both positive and negative correlations were obtained combined positive and negative correlating gene lists were also created.

[167] Class Prediction: The Predict Parameter Values tool in GeneSpring™ software was used for toxicity class prediction. The following is a summary of the procedure used in the GeneSpring predictive software. This is described in GeneSpring Advanced Analysis Techniques Manual (Release Data March 13, 2001, Silicon Genetics) with additional information supplied by Silicon Genetics and a statistical expert. The prediction tool relies on standard statistical procedures that can be implemented in a variety of statistical software packages.

[168] Gene Selection: Genes to be used for prediction are picked through variable selection. This entails taking a single gene and a single class (e.g., toxicity) and creating a contingency table. In the table below, columns 1 through N of the table each represent one possible cutoff point based on the gene expression level (ratio of signal/control) for that class. The number of possible cutoffs is less than or equal to the total number of samples for the class (e.g., A). It is possibly less than the total number, since there may be ties in gene expression level. Hence, N , M , and X may or may not be distinct. In the example, an n -class problem is illustrated, where x and y entries are the class counts at that gene expression cutoff level, for that specific gene and class, either above ("a") or below ("b") the cutoff. "Class1" is the set of all

samples (above or below) the cutoff for Class1, and "IClass1" are all those not in Class1 (above or below) the cutoff, and similarly for the other classes. The class totals in the training set are the total class marginals used to compute Fisher's exact test.

[169] For a specific gene, and for each class, the best p -value as calculated by Fisher's Exact Test for independence between one of the pair of columns (e.g., 1a and 1b) and the actual class totals (e.g., A) is used to score the gene ($-\ln(p)$ = the score) for that class. Thus, there are N (or, M , Q etc.) contingency tables, where the best score of the N tables is used for that class and gene. If there is a wide disparity between the above and below counts in either the a or b column (this is a two-sided Fisher's Exact Test), the smaller the p -value and the higher the score.

[170] The genes per class are rank ordered by the most discriminating (highest) score. The predictivity list is composed of the most discriminating genes per class. Namely, genes are combined that best discriminate class 1 with those that best discriminate class 2 and so on. The genes are selected in rotation of the highest score per class. Duplicate genes are ignored in the rotation and not added to the list, the gene with the next highest score is taken.

[171] The training samples now have only the gene list garnered from the above procedure. As an example, where once the training samples may have had an initial list of 200 genes per sample, they now have only a subset composed of the gene list, say, 50 (the number of predictivity genes specified) that are selected from the initial list by the gene selections procedure. Thus, each sample is a vector of 50 normalized expression ratios. Since the selection of genes is done in rotation, the list contains 25 genes for one class, and 25 for the other class. The matrix below illustrates the basic features of this gene selection process.

Gene 1	1a	1b	...	Na	Na	
Class	Expression	Expression	...	Expression	Expression below	Actual Class

	above	below		above		Totals (Marginals)
Class1	x1.1a	x1.1b	...	x1.Na	x1.Nb	A
!Class1	y1.1a	y1.1b	...	y1.Na	y1.Nb	B
Gene 1	1	2	...	M		
Class2	x1.2a	x1.2b	...	x1.Ma		C
!Class2	y1.2a	y1.2b	...	y1.Ma		D
.
Gene l	1	2	...	Qa	Qb	
Classn	x1.na	x1.nb	...	x1.Qa	x1.Qb	X
!Classn	y1.na	y1.nb	...	y1.Qa	y1.Qb	Y

[172] Classifying the Test Samples: After the genes to be used in the training set have been selected, the test set is classified based on the *k*-nearest neighbor (*knn*) voting procedure. Using just those genes in the gene list, for each sample in the test set of samples, the *k* nearest neighbors in the training set are found with the Euclidean distance. The class in which each of the *k* nearest neighbors is determined, and the test set sample is assigned to the class with the largest representation in the *k* nearest neighbors after adjusting for the proportion of classes in the training set.

[173] For example, in a two-class problem, let there be 30 samples of class 1 and 60 samples of class 2 in the training set. With $k = 9$ say it can be determined that 7 of the nearest neighbors to a sample from the testing set are in class 1. The sample can then be classified as being a member of class 1. If another sample from the test set has a total of 4 nearest neighbors in class 1, after adjusting for the proportion, this

sample would be assigned to class 1 rather than class 2, even though the majority vote suggests assignment to class 2.

[174] Decision Threshold: The decision threshold is a mechanism to help clearly define the class into which the sample will fall, and can be set to reject classification if the voting is very close or tied. (Thus, k can be even for two-class problems without worrying about the tie problem.) A p -value is calculated for the proportion of neighbors in each class against the proportions found in the training set, again using Fisher's exact test, but now a one-sided test.

[175] For example, let $k = 11$, if the proportion of neighbors of class 1 in the test set is 6/11, and the proportion of class 1 in a 100 sample training set is 0.4, the p -value calculated is 0.29 (half the two-sided test). If the proportion in the training set is 0.1, the p -value is 0.004. The smaller the p -value the greater the likelihood that the sample from the testing set belongs to that class.

[176] A p -value ratio (P-value) is set as a way of setting the level of confidence in individual sample predictions based on the ratio of p -values for the best class (lowest p -value) versus the second best class (second lowest p -value). For example, if the P-value is set at 0.5 and the ratio of p -values for a particular sample is 0.6, then the predictive model will not make a call for that sample.

[177] Training and Test Data Sets: Data were each separated into 5 training and test sets by randomly distributing the compounds into the sets. This was accomplished by assigning random numbers to lists of compounds that are negative and positive for histopathology, sorting by random number, and then dividing the sorted lists into a specific number of training and test sets. The training and test set assignments are presented in Table 2.

[178] Toxicology Classification: toxicity classifications were entered for training and test set as a parameter column. Toxicity, as defined by observation of necrosis in the at 72 hours after treatment, was entered as a "yes" or "no" for each animal in a

compound-dose group. Additionally, a parameter column for random histopathology classification was designated. This was done by randomly assigning the same number of "yes" and "no" calls to the individual animals.

[179] Prediction Output and Initial Data Processing: The "Predict Parameter Value" tool of GeneSpring was used with each of the training and test sets to generate predictions of histopathology classifications of the test sets. Unless otherwise specified a nearest neighbor setting of 10 (default) and P-value ratio cutoff of 0.5 was used. The number of genes used to predict was varied with standard numbers of 50, 40, 30, 20, 10, 5, 2 and 1 genes used. For each number of genes the numbers of correct calls, incorrect calls and non-calls were recorded. Non-calls are cases where no prediction was made because the P-value ratio exceeded the specified P-value ratio cutoff. Calculations were made for overall percent correct calls (number of correct classifications/number of samples), percent correct calls of called samples (number of correct classifications/number of samples with calls) and percent of called samples (samples with calls/number of samples).

[180] For each input list and optimal number of predictive genes (lowest number of genes giving a maximum overall percent of correct calls) additional information was recorded that included the list of specific genes in the optimum predictive set.

[181] Results: Expression array data were examined for the existence of genes whose expression correlated with histopathology scores. Table 1 presents a list of the compounds and dose levels along with the histopathology classification and histopathology severity scores used for this analysis. For each distance measure the probability was adjusted in increments of 0.05 until at least 50 correlating genes were obtained. Lists of correlating genes were obtained using the distance measures described in Materials and Methods. Example sets of correlating genes are provided in Tables 3 and 4.

[182] The correlating gene lists as well as the entire array gene list were provided as input lists to the GeneSpring Predict Parameter value tool (described in Materials

and Methods) that employs a K-means nearest neighbor (*knn*) predictive model. These lists as well as the entire array gene list were used for each of the five training and test sets defined in Materials and Methods to generate predictions of histopathology classifications of the test sets. Input genes for the Predict Parameter Value feature included all 700 genes in the GenePix file (the rat CT Array) which were disclosed in a currently pending application (serial number 10/060,893) filed on January 29, 2002, as well as smaller lists of genes whose expressions correlated with histopathology by the correlation measures described previously. The number of genes used to predict are varied with standard numbers of 50, 40, 30, 20, 10, 5, 2 and 1 genes used. The specified number of predictive genes was varied to obtain an optimum number of predictive genes. Figure 4 presents a typical profile for obtaining an optimum gene list.

[183] After this was done for 5 training and test sets, all gene lists were then merged to create one aggregate list of predictive genes. Each gene on this aggregate list has predictive value for at least one of the training and test sets because it was observed to contribute to an optimum predictivity for a specific training/test set. The aggregate list was subdivided into smaller lists of genes based on the number of times a gene was predictive for an individual training or test set. For example, if 5 training and test sets were used, genes that were predictive in 5 training and test sets were designated as Combo (combination) 5. Genes that were predictive in only 4 of 5 training and test sets were designated as Combo 4, etc. A list of predictive genes organized by their occurrence in the separate training and test sets is presented in Table 5.

[184] Example 2

[185] Materials and Methods: The database used was as described in Example 1.

[186] Array Data, Normalization and Transformation: Array data, normalization procedures and transformations used in these analyses are as described in Example 1. Table 32 presents 24 hour gene expression data for the predictive genes. These

data can be used with a k nearest neighbor prediction model (as available in GeneSpring or other statistical software packages) to make predictions as described in this example.

[187] Class Prediction: The Predict Parameter Values tool in GeneSpring™ software was used for toxicity class prediction. A description of this tool and the statistical procedures used is provided in Example 1.

[188] Training and Test Data Sets: The training and test data sets used are those described in Table 2 of Example 1.

[189] Toxicology Classification: toxicity classifications used are described in Table 1 of Example 1. In this analysis randomized classifications (same number of "yes" and "no" classifications distributed randomly among the samples) were also used.

[190] Prediction Output and Initial Data Processing: For each predicting gene list used for evaluation a table of data generated by the Predict Parameter Values tool in GeneSpring™ software was saved which provided for each sample in the test set the actual call ("yes" or "no" for toxicity), the predicted call ("yes", "no" or no call for toxicity) and the P-value cutoff ratio. This set of data was used to calculate predictive performance measures provided below.

[191] Prediction Measures: Measures of prediction used for these analyses are generally accepted prediction measures for information about actual and predicted classifications done by a classification system (*Modern Applied Statistics with S-Plus*, W. N. and B. D. Ripley, Springer, 1994, 3rd edition.; *Proc. 14th International Conference on Machine Learning*, Miroslav Kubat, Stan Matwin, 1997). Results from predictions of a two class case can be described as a two-class matrix:

Actual	Predicted	
	Negative	Positive
	Negative	
	a	b

		Predicted	
	Positive	c	d

[192] Standard terms used for prediction are:

[193] Accuracy is the proportion of total number of predictions that are correct = $a+d/a+b+c+c$

[194] False positive rate is the proportion of negative cases that are incorrectly classified as positive = $b/a+b$

[195] False negative rate is the proportion of positive cases that are incorrectly classified as negative = $c/c+d$

[196] Geometric-mean is the performance measure that takes into account proportion of positive and negative cases (Kubat et al., *ibid*) = the square root of $TP \cdot TN$ where TP = true positive rate ($d/c+d$) and TN = true negative rate ($a/a+b$). In these analyses cases where no prediction was made because the p-value ratio exceeded the cutoff-value (generally 0.5) the non-call was considered to be incorrect.

[197] Random Selected Gene Sets: Subsets of randomly selected genes were prepared from the predictive gene sets to test whether such subsets would have predictive value. Assignments of genes to these subsets are presented in Tables 6-7. Genes were also randomly selected from the list of all genes excluding the 142 twenty-four hour predictive genes (also known as non-predictive genes) by assigning a random number to each gene, sorting by the random number and selecting the appropriate number of sorted genes. Assignments of genes to these subsets are presented in Table 8.

[198] Results: Prediction results for 24 hour expression data using genes identified as predictive are presented in Table 9. These data indicate a very high

accuracy in predicting toxicity. Mean accuracy exceeded 0.92 (92% accuracy) for the entire predictive gene list (Combo All) and all the Combo gene lists. Because these predictions were conducted with multiple training/test set combinations it is possible to obtain an indication of the variability in prediction rates and robustness of the prediction capabilities of these gene sets. For the Combo All and other Combo lists there was very good predictivity for all training/test sets of data with over 0.75 (75%) accuracy as a minimum value for any one training and test set and most lists giving over 0.8 (80%) minimum accuracy. False positive and false negative prediction rates were generally low with means generally less than 0.15 (15%) for all Combo lists. The geometric mean was used as an indication of predictive performance that includes consideration of the proportion of positive and negative classifications. All gene sets gave geometric mean measures >0.8 (80%) and four gene sets (Combo All, Combo 5, Combo 3 and Combo 2 gene lists) had mean measures >0.9 .

[199] As described in Materials and Methods in those cases where no prediction was made because the p-value ratio exceeded the cutoff-value (generally 0.5) the non-call was considered to be incorrect.

[200] Prediction results for 24 hour expression data using genes identified as predictive and the predicting unit of compound-dose are presented in Table 10. This prediction unit is probably the most relevant for toxicology prediction. The performance of the genes in predicting compound-dose toxicity is even better than predictions on an individual animal basis. These data indicate a very high accuracy in predicting toxicity. Mean accuracy exceeded 0.9 (90% accuracy) for the entire predictive gene list (Combo All) and all of the Combo gene lists. Accuracy and was comparable for all the Combo lists. Variability in accuracy was low for most of the gene lists with >0.8 (80%) minimum accuracy for any single training and test set observed for the Combo All and Combo 5, 4, 2 and 1 gene lists. Particularly noteworthy on the compound-dose level prediction is the low false-negative rate and false positive rates observed for all of the Combo sets. The geometric mean

measure of predictive performance also indicated excellent predictive properties for all gene sets.

- [201] One noteworthy feature of the predictive capability is the ability to distinguish between effects of a compound at different dose levels. Four compounds (ANIT, APAP, LPS and TET) produced toxicity at the high dose but not at the low dose. The predictive gene sets were usually accurate in predicting toxicity at the high dose and predicting no toxicity at the low dose.
- [202] Prediction results for 24 hour expression data using genes identified as predictive and the predicting unit is compound are presented in Table 11.
- [203] Predictive performance on a compound basis with accuracies and geometric mean measures being at or above 0.9 (90%) and very low false positive and false negative error rates. Table 12, 13, and 14 show the level of predictive accuracy of individual genes of Combos 5, 4, and 3, respectively, for 24 hour data.
- [204] The tables show that overall, individual genes of the Combo groups did not perform as well as the combination as a whole, as the average predictive accuracy of individual genes versus the entire combo set was 82.6% vs. 89.6% for Combo 5, 80.8% vs. 85.7% for Combo 4, and 69.8% vs. 86.5% for Combo 3. The table also shows that while many of the individual genes of the Combo groups gave a good level of predictive accuracy (as high as 89.2% for individual genes of Combo 5, 90.6% for Combo 4, and 82.1% for Combo 3), the predictive accuracy of individual genes rarely exceeded the predictive accuracy of the whole combination.
- [205] In order to assess the performance of subsets of genes, predictive performance was evaluated for subsets of genes randomly selected from the total combined predictive list (Combo All) and the top Combo sets (as defined in Materials and Methods). Prediction results for 24 hour expression data using randomly selected subsets of genes are presented in Table 15. These data clearly indicate that smaller subsets of the Combo gene lists have predictive power.

[206] Table 16 compares prediction accuracy for correct classification of toxicity and for the same proportion of positive and negative toxicity calls randomly assigned to the samples (random classification). For each gene set or subset predictions were made using the same five training/test sets as for the other prediction analyses. Additionally, sets of genes were randomly chosen from the array which were not identified on the list of 142 predictive genes at 24 hour (Example 1, Table 5).

[207] It is clear from these data that the predictions with accurate classification are much better than predictions with randomized classification. This means that the predictive results are not simply due to chance and large data sets but are due to significant, meaningful predictive association between the gene expression of the predictive genes and the toxicity. The accuracy numbers for the gene sets selected from a list of all genes on the array minus the predictive genes are much lower than the Combo predictive lists and the random subsets of these predictive lists. This also verifies the predictive power of the identified predictive genes. The fact that the predictive numbers from these subsets are somewhat higher for accurate than random classification is likely due to some residual predictivity in these genes that is not very substantial.

[208] Example 3

[209] Materials and Methods: Compounds and treatments list used to construct the database are given in Table 1 of Example 1. This table also provides the evaluation of the toxicity observed as hepatocellular necrosis in samples collected 72 hours after treatment. A database is described in detail in Example 1. This Example analyzes expression data from samples collected 6 hours after treatment.

[210] Array Data, Normalization and Transformation: Array data, normalization and transformation procedures used were as described in Example 1.

[211] Correlation with Histopathology Scores: Procedures and methods for obtaining gene lists correlating with histopathology scores were as described in

Example 1 (Table 1).

- [212] Class Prediction: The Predict Parameter Values tool in GeneSpring™ software used for toxicity class prediction is described in detail in Material and Methods of Example 1.
- [213] Training and Test Data Sets: Data were each separated into 5 training and test sets by randomly distributing the compounds into the sets. This was accomplished by assigning random numbers to lists of compounds that are negative and positive for histopathology, sorting by random number, and then dividing the sorted lists into a specific number of training and test sets. The training and test set assignments are presented in the following Table 17.
- [214] Toxicity Classification: toxicity classifications were entered for training and test set as a parameter column. Toxicity, as defined by observation of hepatocellular necrosis in the at 72 hours after treatment, was entered as a "yes" or "no" for each animal in a compound-dose group. Additionally, a parameter column for random histopathology classification was designated. This was done by randomly assigning the of "yes" and "no" calls to the individual animals such that the total number of "yes" and "no" calls were the same as the correctly assigned classification.
- [215] Prediction Output and Initial Data Processing: The "Predict Parameter Value" tool of GeneSpring was used with each of the training and test sets to generate predictions of histopathology classifications of the test sets. Unless otherwise specified a nearest neighbor setting of 10 (default) and P-value ratio cutoff of 0.5 was used. The number of genes used to predict was varied with standard numbers of 50, 40, 30, 20, 10, 5, 2 and 1 genes used. For each number of genes the numbers of correct calls, incorrect calls and non-calls were recorded. Non-calls are cases where no prediction was made because the P-value ratio exceeded the specified P-value ratio cutoff. Calculations were made for overall percent correct calls (number of correct classifications/number of samples), percent correct calls of called samples (number of correct calls/number of samples with calls) and percent of

called samples (samples with calls/number of samples).

[216] For each input list and optimal number of predictive genes (lowest number of genes giving a maximum overall percent of correct calls) additional information was recorded that included the list of specific genes in the optimum predictive set.

[217] Results: Expression array data were examined for the existence of genes whose expression correlated with histopathology scores. Table 1 in Materials and Methods of Example 1 presents a list of the compounds and dose levels along with the histopathology classification and histopathology severity scores used for this analysis. For each distance measure the probability was adjusted in increments of 0.05 until at least 50 correlating genes were obtained. Lists of correlating genes were obtained using the distance measures described in Materials and Methods. Example sets of correlating genes are provided in Tables 18-19.

[218] The correlating gene lists as well as the entire array gene list were provided as input lists to the GeneSpring Predict Parameter value tool (described in Materials and Methods) that employs a K-means nearest neighbor (*knn*) predictive model. These lists as well as the entire array gene list were used for each of the six training and test sets defined in Materials and Methods to generate predictions of histopathology classifications of the test sets. Input genes for the Predict Parameter Value feature included all 700 genes in the GenePix file (the Rat CT Array) as well as smaller lists of genes whose expressions correlated with histopathology by the correlation measures described previously. The number of genes used to predict are varied with standard numbers of 50, 40, 30, 20, 10, 5, 2 and 1 genes used. The specified number of predictive genes was varied to obtain an optimum number of predictive genes.

[219] After this was done for 5 training and test sets, gene lists were then merged to create one aggregate list of predictive genes. Each gene on this aggregate list has predictive value for at least one of the training and test sets because it was observed to contribute to an optimum predictivity for a specific training/test set. The

aggregate list was subdivided into smaller lists of genes based on the number of times a gene was predictive for an individual training or test set. For example, if 5 training and test sets were used, genes that were predictive in 5 training and test sets were designated as Combo (combination) 5. Genes that were predictive in only 4 of 5 training and test sets were designated as Combo 4, etc.

[220] A list of predictive genes organized by their occurrence in the separate training and test sets is presented in Table 20.

[221] Example 4

[222] Materials and Methods: The database used was as described in Example 1.

[223] Array Data, Normalization and Transformation: Array data, normalization procedures and transformations used in these analyses are as described in Example 1. Table 34 lists 6 hour gene expression data for the predictive genes. These data can be used with a k-means nearest neighbor prediction model (as available in GeneSpring or other statistical software packages) to make predictions as described in this example

[224] Class Prediction: The Predict Parameter Values tool in GeneSpring™ software was used for toxicity class prediction. A description of this tool and the statistical procedures used is provided in Example 1.

[225] Training and Test Data Sets: The training and test data sets used are those described in Table 17 of Example 3.

[226] Toxicology Classification: toxicology classifications used are described in Table 1 of Example 1. In this analysis randomized classifications (same number of "yes" and "no" classifications distributed randomly among the samples) were used.

[227] Prediction Output and Initial Data Processing: For each gene list prediction used for evaluation a table of data generated by the Predict Parameter Values tool in

GeneSpring™ software was saved which provided for each sample in the test set the actual call ("yes" or "no" for toxicity), the predicted call ("yes", "no" or no call for toxicity) and the P-value cutoff ratio. This set of data was used to calculate predictive performance measures provided below.

[228] Prediction Measures: Measures of prediction used for these analyses are generally accepted prediction measures for information about actual and predicted classifications done by a classification system (*Modern Applied Statistics with S-Plus*, W. N. Venables and B. D. Ripley, Springer, 1994, 3rd edition; *Proc. 14th International Conference on Machine Learning*, Miroslav Kubat, Stan Matwin, 1997). Results from predictions of a two class case can be described as a two-class matrix:

Actual		Predicted	
		Negative	Positive
	Negative	a	b
	Positive	c	d

[229] Standard terms used for prediction are:

[230] Accuracy is the proportion of total number of predictions that are correct = $a+d/a+b+c+c$

[231] False positive rate is the proportion of negative cases that are incorrectly classified as positive = $b/a+b$

[232] False negative rate is the proportion of positive cases that are incorrectly classified as negative = $c/c+d$

[233] Geometric-mean is the performance measure that takes into account proportion of positive and negative cases (Kubat et al., *ibid*) = the square root of $TP \cdot TN$ where TP = true positive rate ($d/c+d$) and TN = true negative rate ($a/a+b$). In

these analyses cases where no prediction was made because the p-value ratio exceeded the cutoff-value (generally 0.5) the non-call was considered to be incorrect.

[234] Results: Prediction results for 6 hour expression data using genes identified as predictive are presented in Table 21. These data indicate accuracy in predicting toxicity with 6 hr expression data. Mean accuracy exceeded 0.7 (70% accuracy) for the entire predictive gene list (Combo All) and 0.6 (60%) for the Combo gene lists. Mean false positive and false negative values were in the range of 0.3-0.4 for the best predicting gene sets and the geometric mean measures were higher than 0.6 except for the Combo 1 gene set. Comparison of predictive performance for correct and random classification is given in Table 22.

[235] It is clear from these data that the predictions with accurate classification are much better than predictions with randomized classification. This means that the predictive results are not simply due to chance and large data sets but are due to significant, meaningful predictive association between the gene expression of the predictive genes and the toxicity.

[236] Example 5

[237] Database - Compounds and Toxicity: Compounds and treatments list used to construct the database are given in Table 1 of Example 1. This table also provides the evaluation of the toxicity observed as hepatocellular necrosis in samples collected 72 hours after treatment. The Phase-1 Database is described in detail in Example 1. This Example analyzes expression data from samples collected 72 hours after treatment.

[238] Array Data, Normalization and Transformation: Array data, normalization and transformation procedures used were as described in Example 1.

[239] Correlation with Histopathology Scores: Procedures and methods for obtaining gene lists correlating with histopathology scores were as described in Example 1 with scores as in Example 1, Table 1.

- [240] Class Prediction: The Predict Parameter Values tool in GeneSpring™ software used for toxicity class prediction is described in detail in Material and Methods of Example 1.
- [241] Training and Test Data Sets: Data were each separated into 5 training and test sets by randomly distributing the compounds into the sets. This was accomplished by assigning random numbers to lists of compounds that are negative and positive for histopathology, sorting by random number, and then dividing the sorted lists into a specific number of training and test sets. The training and test set assignments are presented in the Table 23.
- [242] Toxicology Classification: toxicity classifications were entered for training and test set as a parameter column. Toxicity, as defined by observation of hepatocellular necrosis in the at 72 hours after treatment, was entered as a "yes" or "no" for each animal in a compound-dose group. Additionally, a parameter column for random histopathology classification was designated. This was done by randomly assigning the same number of "yes" and "no" calls to the individual animals.
- [243] Prediction Output and Initial Data Processing: The 'Predict Parameter Value' tool of GeneSpring was used with each of the training and test sets to generate predictions of histopathology classifications of the test sets. Unless otherwise specified a nearest neighbor setting of 10 (default) and P-value ratio cutoff of 0.5 was used. The number of genes used to predict was varied with standard numbers of 50, 40, 30, 20, 10, 5, 2 and 1 genes used. For each number of genes the numbers of correct calls, incorrect calls and non-calls were recorded. Non-calls are cases where no prediction was made because the P-value ratio exceeded the specified P-value ratio cutoff. Calculations were made for overall percent correct calls (number of correct classifications/number of samples), percent correct calls of called samples (number of correct classifications/number of samples with calls) and percent of called samples (samples with calls/number of samples).
- [244] For each input list and optimal number of predictive genes (lowest number of

genes giving a maximum overall percent of correct calls) additional information was recorded that included the list of specific genes in the optimum predictive set.

[245] Results: Expression array data were examined for the existence of genes whose expression correlated with histopathology scores. Table 1 in Materials and Methods of Example 1 presents a list of the compounds and dose levels along with the histopathology classification and histopathology severity scores used for this analysis. For each distance measure the probability was adjusted in increments of 0.05 until at least 50 correlating genes were obtained. Lists of correlating genes were obtained using the distance measures described in Materials and Methods. Example sets of correlating genes are provided in Tables 24-25.

[246] The correlating gene lists as well as the entire array gene list were provided as input lists to the GeneSpring Predict Parameter value tool (described in Materials and Methods) that employs a K-means nearest neighbor (*knn*) predictive model. These lists as well as the entire array gene list were used for each of the five training and test sets defined in Materials and Methods to generate predictions of histopathology classifications of the test sets. Input genes for the Predict Parameter Value feature included all 700 genes in the GenePix file (the Rat CT Array) as well as smaller lists of genes whose expressions correlated with histopathology by the correlation measures described previously. The number of genes used to predict are varied with standard numbers of 50, 40, 30, 20, 10, 5, 2 and 1 genes used. The specified number of predictive genes was varied to obtain an optimum number of predictive genes.

[247] After this was done for 5 training and test sets, all gene lists were then merged to create one aggregate list of predictive genes. Each gene on this aggregate list has predictive value for at least one of the training and test sets because it was observed to contribute to an optimum predictivity for a specific training/test set. The aggregate list was subdivided into smaller lists of genes based on the number of times a gene was predictive for an individual training or test set.

For example, if 5 training and test sets were used, genes that were predictive in 5 training and test sets were designated as Combo (combination) 5. Genes that were predictive in only 4 of 5 training and test sets were designated as Combo 4, etc.

[248] A list of predictive genes organized by their occurrence in the separate training and test sets is presented in Table 26.

[249] Example 6

[250] Database: The database used was as described in Example 1.

[251] Array Data, Normalization and Transformation: Array data, normalization procedures and transformations used in these analyses are as described in Example 1. Table 36 presents 72 hour gene expression data for the predictive genes. These data can be used with a k-means nearest neighbor prediction model (as available in GeneSpring or other statistical software packages) to make predictions as described in this example.

[252] Class Prediction: The Predict Parameter Values tool in GeneSpring™ software was used for toxicity class prediction. A description of this tool and the statistical procedures used is provided in Example 1.

[253] Training and Test Data Sets: The training and test data sets used are those described in the table of Example 5.

[254] Toxicology Classification: toxicology classifications used are described in Table 1 of Example 1. In this analysis randomized classifications (same number of "yes" and "no" classifications distributed randomly among the samples) were also used.

[255] Prediction Output and Initial Data Processing: For each gene list prediction used for evaluation a table of data generated by the Predict Parameter Values tool in GeneSpring™ software was saved which provided for each sample in the test set the

actual call ("yes" or "no" for toxicity), the predicted call ("yes", "no" or no call for toxicity) and the P-value cutoff ratio. This set of data was used to calculate predictive performance measures provided below.

[256] Prediction Measures: Measures of prediction used for these analyses are generally accepted prediction measures for information about actual and predicted classifications done by a classification system (Venables and Ripley, *ibid*; Kubat and Matwin, *ibid*). Results from predictions of a two-class case can be described as a two-class matrix:

Actual		Predicted	
		Negative	Positive
	Negative	a	b
	Positive	c	d

[257] Standard terms used for prediction are the same as in Example 2. In these analyses cases where no prediction was made because the p-value ratio exceeded the cutoff-value (generally 0.5) the non-call was considered to be incorrect.

[258] Results: Prediction results for 72 hour expression data using genes identified as predictive are presented in Table 27. These data indicate accuracy in predicting toxicity with 72 hr expression data. Mean accuracy exceeded 0.7 (70% accuracy) for the entire predictive gene list (Combo All) and Combo 4, 3 and 2 sets and 0.55 (55%) for the Combo 1 and 5 gene lists. Mean false positive and false negative values were in the range of 0.2-0.4 for the best predicting gene sets and the geometric mean measures were higher than 0.6 for all gene sets.

[259] Comparison of predictive performance for correct and random classification is given in Table 28.

[260] It is clear from these data that the predictions with accurate classification are much better than predictions with randomized classification. This means that the

predictive results are not simply due to chance and large data sets but are due to significant, meaningful predictive association between the gene expression of the predictive genes and the toxicity.

[261] Example 7

[262] Predictive Modeling: The predictive task with the toxicology gene expression data is a two-class classification problem, where the two classes of possible responses are defined by either hepatocellular necrosis (*yes*) or absence of hepatocellular necrosis (*no*). This is an uneven class problem in that the class of *yes* responses is roughly 20 percent of the data or less in the database tested. A discrimination function can be used to classify a training set. This function can be cross-validated with a testing set, often repeatedly to quantify the mean and variation of the classification error. There are numerous common discrimination functions, and a comparative study of the performance of these functions is useful in determining the best classifier. Additional measures can then be used to compare the performance of the classifiers. Since the classes are of significantly uneven sizes, use a geometric mean measure (*GMM*) can be used to compare models, namely, the square root of the product of the true positives and the true negatives.

[263] Common discrimination methods are Fisher's linear discriminant, quadratic discriminant (mahalanobis distance), *k*-nearest neighbors (*knn*), logistic discriminant (MacLachlan, 1992), classification trees (or more generally known as recursive partitioning) (Breiman et al., 1984; Clark and Pregibon, 1993; Quinlan and Kaufman, 1988), and neural network classifiers [Ripley, 1996]. Most are formula-based such as linear and quadratic discriminant, whereas others are rule-based, such as recursive partitioning, or algorithmically based, such as *knn*. *knn* is also database dependent in that a database containing training set is needed to perform nearest neighbor search and classification.

[264] Classifier Models: A variety of common classification techniques are available. A simple hybrid classifier could be designed and tested, using the *knn*

results, to transform the *knn* model into a database independent model. This model is termed a *centroid* model. The centroid model uses the correctly identified test data results from *knn* and locates a centroid of the subset of *k* samples that are of the same class for each correctly identified test sample. The centroid is assigned the correct class, and with new test data, a sample is assigned the class of its nearest centroid.

[265] In addition to the *knn* and centroid models described above, tree, centroid, logistic, and neural network models could also be employed. The neural network is a simple, feed-forward network, allowing skip layers, and with an entropy fitting criterion.

[266] Example 8

[267] Animal Treatment and Tissue Harvest: Male Sprague-Dawley rats in groups of 3 were treated by intraperitoneal injection with test compounds (thioacetamide, 200 mg/kg and *a*-naphthylisothiocyanate (ANIT), 100 mg/kg) or only with the vehicle in which the compound was mixed. At specified timepoints (24h and 72h) the rats were euthanized and tissues collected. tissues were immediately placed into liquid nitrogen and frozen within 3 minutes of the death of the animal to ensure that mRNA did not degrade. The tissues were sent blinded to be tested. The organs/tissues were then packaged into well-labeled plastic freezer quality bags and stored at -80 degrees until needed for isolation of the mRNA from a portion of the organ/tissue sample.

[268] Gene Expression Measurement: Isolation of RNA, preparation of cDNA labeled probes and hybridizations procedures were as described in Example 1 Materials and Methods. Probes were hybridized to the rat CT Chip which is the same array as used for the database.

[269] Data Analysis

[270] Array data from the samples was loaded into GeneSpring software using the

same procedures as used for the database. No toxicity parameters were entered for these samples. The Predict Parameter Value tool was used to make toxicity predictions using different Combo Gene sets from the 24 hour data and the entire database as the training set. Other values used were 10 nearest neighbors and a p-value ratio cutoff of 0.5.

[271] Results: Table 29 presents predictions for samples that were external to the database used to derive the predictive genes. The samples were samples from replicate animals treated with thioacetamide or ANIT. One of these compounds (ANIT) is also represented in the database (at a different dose level) and the other compound, thioacetamide, is not in the database. Histopathology conducted on the samples verified that these treatments induced hepatocellular necrosis. Each of the Combo gene sets correctly predicted that these samples had expression patterns indicative of toxicity.

[272] These results demonstrate clearly that the discovered sets of predictive genes in conjunction with the database and K-means nearest neighbor model can accurately predict toxicity from microarray data that is external to the database. Because the database consists mostly of non-toxic samples the prediction of toxicity for these samples is significantly different from what would be expected from chance. It is also noteworthy that five different sets of predictive genes are capable of making accurate predictions.

[273] This result provides a clear example of the predictive utility of this invention.

[274] Example 9

[275] Gene Expression Data: Gene expression data used for cluster analysis were the 24 hour expression data of the 68 genes of the combined Combo 5, 4, 3 and 2 predictive gene sets. These data are contained in Table 35.

[276] Cluster Analysis: Cluster analysis tools used in these analyses included K-means and gene tree features of GeneSpring software.

[277] Results: Figure 5 presents combined results of K-means and gene-tree hierarchical clustering analysis. Combo 5, 4, 3 and 2 (68 genes) were clustered using K-means (number of clusters 8, maximum iteration 100, similarity measure Pearson) and Gene tree (separation ratio 0.5, minimum distance 0.001, similarity measure Pearson). The k-means clusters are colored according to the corresponding set 1 to set 8). The gene on the display from left to right correspond to the gene names top to bottom in the Table 30. These data indicate that the predictive genes can be organized into sets of genes which have similar expression patterns.

[278] It is understood that the examples and embodiments described herein are for illustrative purposes only and that various modifications or changes in light thereof will be suggested to persons skilled in the art and are to be included within the spirit and purview of this application and scope of the appended claims. All publications, patents and patent applications cited herein are hereby incorporated by reference in their entirety for all purposes to the same extent as if each individual publication, patent or patent application were specifically and individually indicated to be so incorporated by reference.

What is claimed is:

1. A method of predicting the liver toxicity in an individual to an agent comprising the steps of:
obtaining a biological sample from the individual treated with the agent;
measuring the expression of one or more liver toxicity predictive genes in the sample, wherein the genes are selected from the group consisting of partial gene sequences of genes identified as responsive to agents causing liver necrosis, thereby generating a test expression profile; and
using the test expression profile with a set of reference expression profiles in a Predictive Model to determine whether the agent will induce liver toxicity in the individual.
2. The method according to claim 1, wherein the liver toxicity predictive genes are selected from the group of partial gene sequences listed in Table 32 that represent 24 hour combo All genes.
3. The method according to claim 2, wherein the partial gene sequences correspond to rat genes.
4. The method according to claim 2, wherein the partial gene sequences correspond to dog genes.
5. The method according to claim 2, wherein the partial gene sequences correspond to non-human primate genes.
6. The method according to claim 2, wherein the partial gene sequences correspond to human genes.
7. The method according to claim 1, wherein the liver toxicity predictive genes are selected from the group of partial gene sequences listed in Table 32 that represent 24 hour combo 2 genes.
8. The method according to claim 7, wherein the partial gene sequences

correspond to rat genes.

9. The method according to claim 7, wherein the partial gene sequences correspond to dog genes.
10. The method according to claim 7, wherein the partial gene sequences correspond to non-human primate genes.
11. The method according to claim 7, wherein the partial gene sequences correspond to human genes.
12. The method according to claim 1, wherein the liver toxicity predictive genes are selected from the group of partial gene sequences listed in Table 32 that represent 24 hour Combo 5 genes.
13. The method according to claim 12, wherein the partial gene sequences correspond to rat genes.
14. The method according to claim 12, wherein the partial gene sequences correspond to dog genes.
15. The method according to claim 12, wherein the partial gene sequences correspond to non-human primate genes.
16. The method according to claim 12, wherein the partial gene sequences correspond to human genes.
17. A method of predicting the liver toxicity of an agent using an in vitro system, comprising the steps of:
obtaining a biological sample from an in-vitro cultured cells or explants treated with the agent;
measuring the expression of one or more liver toxicity predictive genes in the sample, wherein the genes are selected from the group consisting of partial gene sequences of genes identified as responsive to agents causing

liver necrosis, thereby generating a test expression profile; and using the test expression profile with a set of reference expression profiles in a Predictive Model to determine whether the agent will induce liver toxicity in the individual.

18. The method according to claim 17, wherein the liver toxicity predictive genes are selected from the group of partial gene sequences listed in Table 32 that represent 24 hour combo All genes.
19. The method according to claim 18, wherein the partial gene sequences correspond to rat genes.
20. The method according to claim 18, wherein the partial gene sequences correspond to dog genes.
21. The method according to claim 18, wherein the partial gene sequences correspond to non-human primate genes.
22. The method according to claim 18, wherein the partial gene sequences correspond to human genes.
23. The method according to claim 17, wherein the liver toxicity predictive genes are selected from the group comprising of 24 hour Combo 2 genes.
24. The method according to claim 23, wherein the partial gene sequences correspond to rat genes.
25. The method according to claim 23, wherein the partial gene sequences correspond to dog genes.
26. The method according to claim 23, wherein the partial gene sequences correspond to non-human primate genes.
27. The method according to claim 23, wherein the partial gene sequences

correspond to human genes.

28. The method according to claim 17, wherein the liver toxicity predictive genes are selected from the group of partial gene sequences listed in Table 32 that represent 24 hour Combo 5 genes.
29. The method according to claim 28, wherein the partial gene sequences correspond to rat genes.
30. The method according to claim 28, wherein the partial gene sequences correspond to dog genes.
31. The method according to claim 28, wherein the partial gene sequences correspond to non-human primate genes.
32. The method according to claim 28, wherein the partial gene sequences correspond to human genes.
33. A process for predicting the liver toxicity in a biological sample from an individual, an in-vitro cell cultures or explants to an agent via a programmable machine, the process comprising the steps of:
obtaining a biological sample treated with the agent;
measuring the expression of one or more liver toxicity predictive genes in the sample, wherein the genes are selected from the group consisting of partial gene sequences of genes identified as responsive to agents causing liver necrosis, thereby generating a test expression profile; and
using the test expression profile with a set of reference expression profiles in a Predictive Model to determine whether the agent will induce liver toxicity in the individual.
34. A computer program product for enabling a computer to perform Predictive Model analysis for liver toxicity on a biological sample from an individual, an in-vitro cell cultures or explants to an agent, the computer program product

comprising:

software instructions for enabling the computer to perform predetermined operations, and a computer readable medium embodying the software instructions;

The pre-determined operations comprising:

measuring an expression of one or more liver toxicity predictive genes in a sample, wherein the genes are selected from the group consisting of partial gene sequences of genes identified as responsive to agents causing liver necrosis, thereby generating a test expression profile; and

using the test expression profile with a set of reference expression profiles in a Predictive Model to determine whether the agent will induce liver toxicity in the individual.

35. A Computer system adopted to predict liver toxicity in a biological sample from an individual, an in-vitro cell cultures, or explants to an agent, comprising a processor and a memory including software instructions adapted to enable the computer system to perform operations comprising:
measuring the expression of one or more liver toxicity predictive genes in the sample, wherein the genes are selected from the group consisting of partial gene sequences of genes identified as responsive to agents causing liver necrosis, thereby generating a test expression profile; and
using the test expression profile with a set of reference expression profiles in a Predictive Model to determine whether the agent will induce liver toxicity in the individual.
36. A computer program product for predicting liver toxicity from a test sample expression profile, comprising:
an encrypted training data set;
encrypted lists of genes selected from genes predictive of liver toxicity to be used with the encrypted training data set, and

a Predictive Model that uses the encrypted training data sets, the encrypted lists of genes, and the test sample expression profile to predict the liver toxicity of the test sample.

37. The computer program product of claim 36, wherein the encrypted lists of genes are selected from any Combination Category appearing in Tables 5, 20 and 26.
38. The computer program product of claim 36, wherein the encrypted lists of genes comprise a 24 hour Combo All genes as set in Table 5.
39. The computer program product of claim 36, wherein the encrypted lists of genes comprise a 6 hour Combo All genes as set in Table 20.
40. The computer program product of claim 36, wherein the encrypted lists of genes comprise a 72 hour Combo All genes as set in Table 26.
41. A method for mining genes predictive for liver toxicity, comprising the steps of:
 - collecting expression levels of a plurality of candidate toxicity predictive genes among a multiplicity of samples;
 - defining a group of samples to be a training set;
 - defining another group of samples to be a test set;
 - optionally generating additional training and test sets; and
 - selecting a set of genes which are predictive of liver toxicity based on evaluating the training and test sets in a Predictive Model.
42. The method according to claim 41, wherein the expression levels are stored as a database on an electronic medium.
43. An integrated system for predicting liver toxicity, comprising:
 - means for measuring gene expression profiles of genes predictive of liver toxicity from biological samples exposed to a test agent; and

a computer system operably linked to the means wherein the computer system is capable of implementing a Predictive Model.

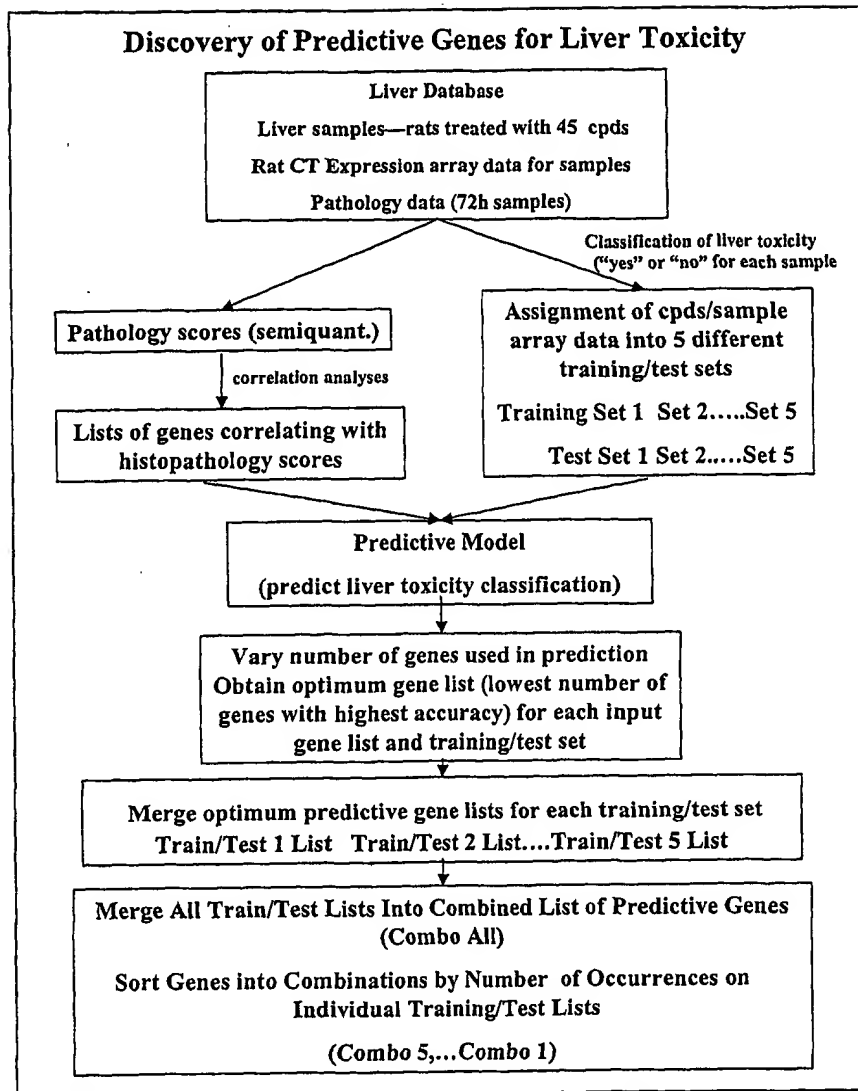


Figure 1

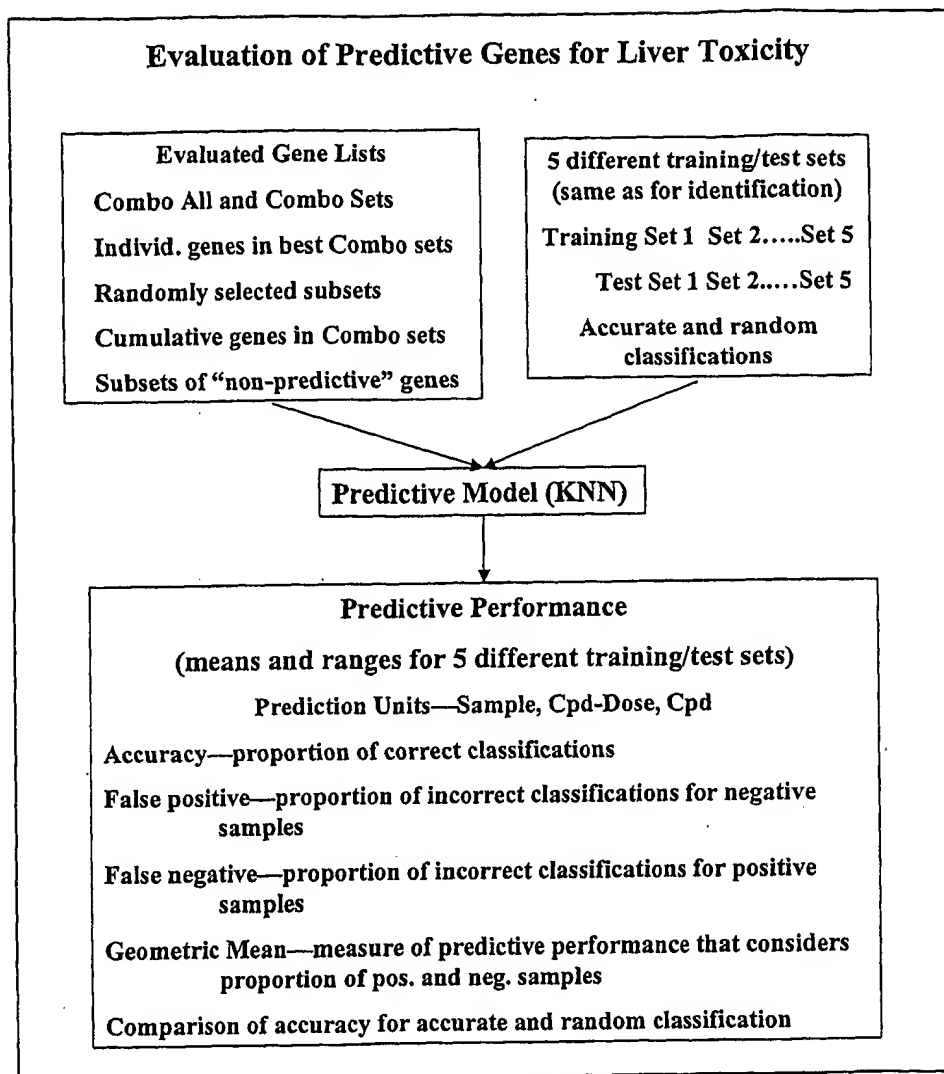


Figure 2

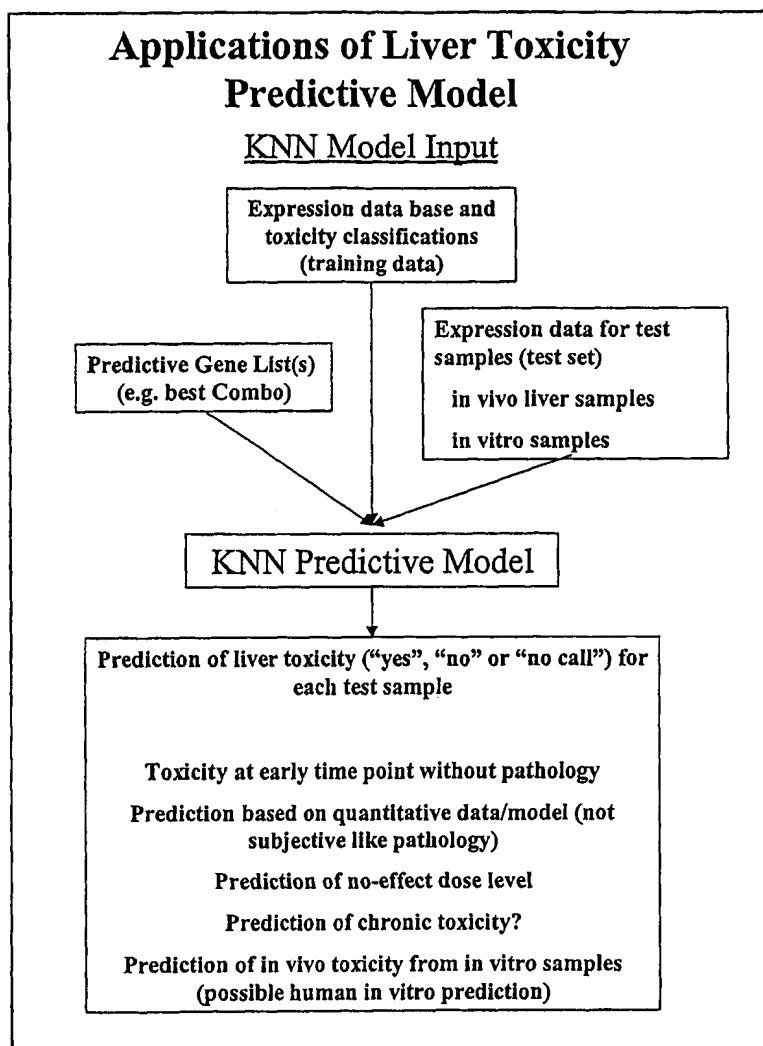


Figure 3

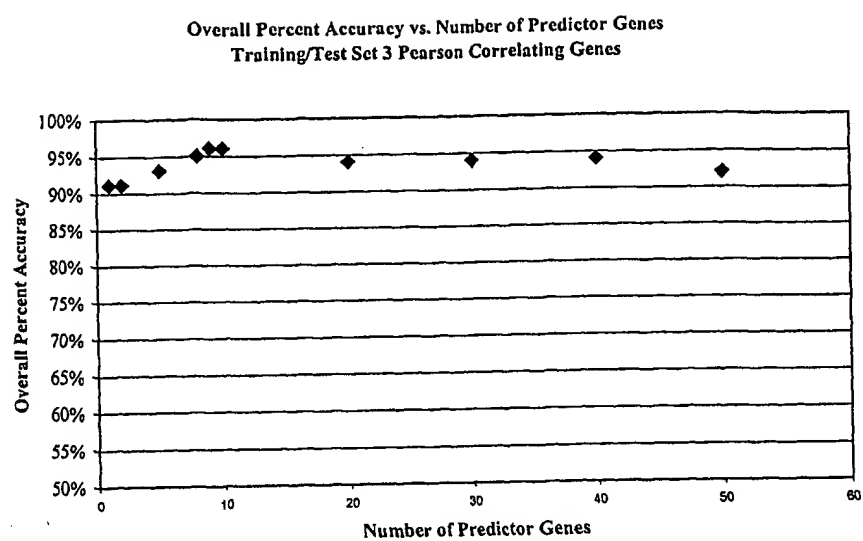


Figure 4

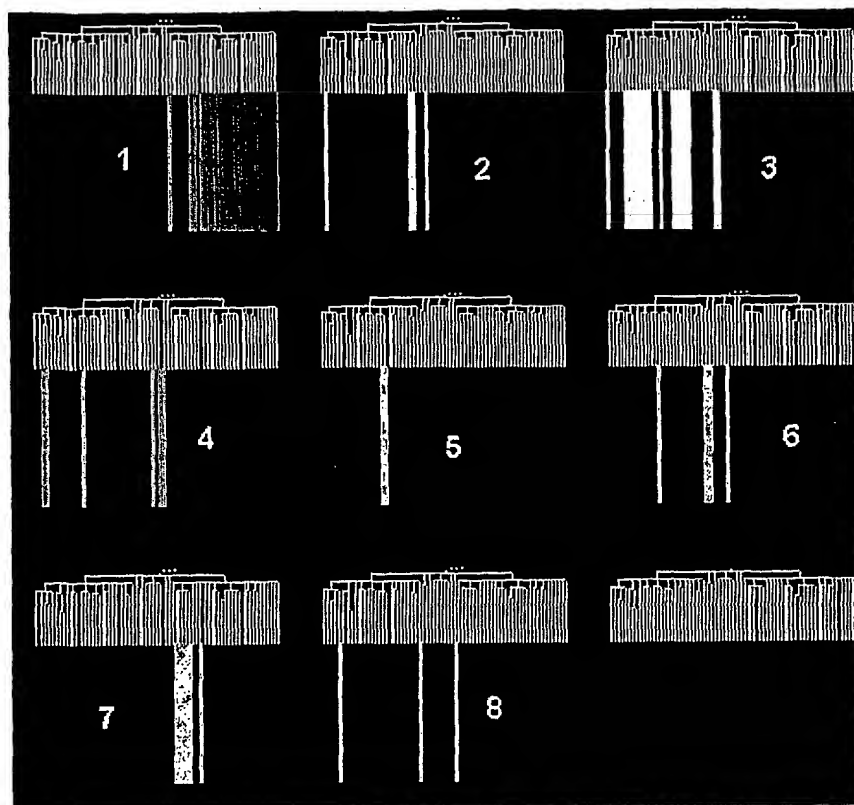


Figure 5

K-Means and Tree Cluster analysis of Combo 5, 4, 3 and 2 Genes

Individual genes associated with each of the 8 clusters are presented in Table 30.

Table 1 Compounds, Dose Levels, Liver Pathology and Abbreviations in the Database

Compound	Dose Level	Abbreviation	Liver* Necrosis	Score**
1-naphthylisothiocyanate	15mg/kg	ANIT 15	no	1
1-naphthylisothiocyanate	60mg/kg	ANIT 60	Yes	2
5-fluorouracil	13 mg/kg	5-FU 13	no	1
5-fluorouracil	50 mg/kg	5-FU 50	no	1
acetaminophen	250 mg/kg	APAP 250	no	1
acetaminophen	1000 mg/kg	APAP 1000	Yes	2
aflatoxin B1	1 mg/kg	AFLB 1	Yes (no 24h)	8
amphotericin B	5 mg/kg	AMPB 5	No	1
amphotericin B	20 mg/kg	AMPB 20	No	1
azathioprine	50 mg/kg	AZA 50	No	1
azathioprine	200 mg/kg	AZA 200	No	1
benzene	0.25 ml/kg	BEN 250	No	1
benzene	1 ml/kg	BEN 1000	No	1
benzo[a]pyrene	30 mg/kg	BAP 30	No	1
bromobenzene	0.2 ml/kg	BRB 200	Yes	2
bromobenzene	0.8 ml/kg	BRB 800	Yes	4
busulfan	14 mg/kg	BUS 14	no	1
cadmium chloride	1 mg/kg	CAD 1	no	1
cadmium chloride	2 mg/kg	CAD 2	No (72h only)	1
cadmium chloride	4 mg/kg	CAD 4	Yes (6h only)	3
carbon tetrachloride	0.25 ml/kg	CCL4 250	Yes	3
carbon tetrachloride	1 ml/kg	CCL4 1000	Yes	6
carmustine	16 mg/kg	CAR 16	no	1
chloroform	0.25 ml/kg	CHCL3 250	no	1
chloroform	0.5 ml/kg	CHCL3 500	no	1
chlorpromazine	8 mg/kg	CHLOR 8	no	1
chlorpromazine	30 mg/kg	CHLOR 30	no	1
cisplatin	2.5 mg/kg	CIS 2.5	no	1
cisplatin	10 mg/kg	CIS 10	no	1
clofibrate	75 mg/kg	CLO 75	no	1
clofibrate	250 mg/kg	CLO 250	no	1
clozapine	45 mg/kg	CLOZ 45	no	1
clozapine	180 mg/kg	CLOZ 180	no	1
carboxy methyl cellulose	30 mg/kg	CMC 30	no	1
cycloheximide	0.5 mg/kg	CHEX 0.5	no	1
cycloheximide	2 mg/kg	CHEX 2	no	1
cyclophosphamide	25 mg/kg	CPHOS 25	no	1
cyclophosphamide	100 mg/kg	CPHOS 100	no	1

cyclosporin A	20 mg/kg	CYCA 20	no	1
cyclosporin A	80 mg/kg	CYCA 80	no	1
dexamethasone	8 mg/kg	DEX 8	no	1
dexamethasone	30 mg/kg	DEX 30	no	1
diflunisal	25 mg/kg	DIF 25	no	1
diflunisal	100 mg/kg	DIF 100	no	1
dimethylnitrosamine	20 mg/kg	DMN 20	Yes	9
doxorubicin	12 mg/kg	DOX 12	no	1
erythromycin estolate	40 mg/kg	ERY 40	no	1
erythromycin estolate	160 mg/kg	ERY 160	no	1
estradiol	0.1 mg/kg	EST 0.1	no	1
estradiol	0.4 mg/kg	EST 0.4	no	1
ethanol	2.5 ml/kg	ETH 2500	no	1
gancyclovir	50 mg/kg	GAN 50	no	1
gancyclovir	200 mg/kg	GAN 200	no	1
gentamicin	38 mg/kg	GEN 38	no	1
gentamicin	150 mg/kg	GEN 150	no	1
hydroxyurea	250 mg/kg	HYD 250	no	1
hydroxyurea	1000 mg/kg	HYD 1000	no	1
isoniazid	50 mg/kg	ISON 50	no	1
isoniazid	200 mg/kg	ISON 200	no	1
ketoconazole	20 mg/kg	KETO 20	no	1
ketoconazole	80 mg/kg	KETO 80	no	1
lipopolysaccharide	2 mg/kg	LPS 2	no	1
lipopolysaccharide	8 mg/kg	LPS 8	Yes	6
methotrexate	1.3 mg/kg	MET 1.3	no	1
methotrexate	5 mg/kg	MET 5	no	1
naloxone	45 ml/kg	NAL 45	no	1
naloxone	180 mg/kg	NAL 180	no	1
phenobarbital	20 mg/kg	PBARB 20	no	1
phenobarbital	80 mg/kg	PBARB 80	no	1
phenylhydrazine	20 mg/kg	PHEN 20	no	1
phenylhydrazine	80 mg/kg	PHEN 80	no	1
polyethylene glycol	5 ml/kg	PEG 5000	no	1
puromycin	38 mg/kg	PUR 38	no	1
puromycin	150 mg/kg	PUR 150	no	1
quinidine	25 mg/kg	QUIN 25	no	1
quinidine	100 mg/kg	QUIN 100	no	1
streptozotocin	20 mg/kg	STRZ 20	no	1
streptozotocin	75 mg/kg	STRZ 75	no	1
tamoxifen	50 mg/kg	TAM 50	no	1
tamoxifen	200 mg/kg	TAM 200	no	1
tetracycline	50 mg/kg	TET 50	no	1
tetracycline	150 mg/kg	TET 150	Yes	2

theophylline	25 mg/kg	THEO 25	no	1
theophylline	100 mg/kg	THEO 100	no	1

* Values in parentheses indicate that array data are only available for indicated time points

** Histopathology liver necrosis severity scores. 1= not remarkable; 2 and higher indicate histopathology of increasing severity

Table 2 Distribution of Compounds* in Individual
Training and Test Sets for 24 Hour Liver Data

Training and Test Set 1

Training Set 1 Negative	Training Set 1 Positive	Test Set 1 Negative	Test Set 1 Positive
5-FU	ANIT	CAD	CCL4
AMPB	APAP	CAR	LPS
AZA	BRB	CHLOR	TET
BAP	DMN	CIS	
BEN		CLO	
BUS		DEX	
CHCL3		EST	
CHEX		GEN	
CLOZ		HYD	
CMC		ISON	
CPHOS		MET	
CYCA		NAL	
DIF		PHEN	
DOX		PUR	
ERY		QUIN	
ETH		STRZ	
GAN			
KETO			
PBARB			
PEG			
TAM			
THEO			

Training and Test Set 2

Training Set 2 Negative	Training Set 2 Positive	Test Set 2 Negative	Test Set 2 Positive
5-FU	BRB	AZA	ANIT
AMPB	CCL4	BAP	APAP
BEN	LPS	BUS	DMN
CAD	TET	CAR	
CHEX		CHCL3	
CHLOR		CLO	
CIS		CPHOS	
CLOZ		DIF	
CMC		DOX	

CYCA		ERY	
DEX		GAN	
EST		ISON	
ETH		MET	
GEN		PHEN	
HYD		PUR	
KETO		STRZ	
NAL			
PBARB			
PEG			
QUIN			
TAM			
THEO			

Training and Test Set 3

Training Set 3 NNegative	TTraining Set 3 PPositive	Test Set 3 NNegative	Test Set 3 Positive
5-FU	ANIT	BAP	APAP
AMPB	BRB	CAD	CCL4
AZA	DMN	CHEX	TET
BEN	LPS	CIS	
BUS		CLO	
CAR		CMC	
CHCL3		CYCA	
CHLOR		DIF	
CLOZ		ISON	
CPHOS		NAL	
DEX		PEG	
DOX		PUR	
ERY		QUIN	
EST		STRZ	
ETH		TAM	
GAN		THEO	
GEN			
HYD			
KETO			
MET			
PBARB			
PHEN			

Training and Test Set 4

Training Set 4 Negative	Training Set 4 Positive	Test Set 4 Negative	Test Set 4 Positive
AZA	APAP	5-FU	ANIT
BAP	CCL4	AMPB	BRB
CAD	DMN	BEN	TET
CAR	LPS	BUS	
CHEX		CHCL3	
CHLOR		CLO	
CIS		CYCA	
CLOZ		DIF	
CMC		DOX	
CPHOS		ERY	
ETH		EST	
GAN		KETO	
GEN		PEG	
HYD		PUR	
ISON		QUIN	
MET		TAM	
NAL			
PBARB			
PHEN			
STRZ			
THEO			
DEX			

Training and Test Set 5

Training Set 5 Negative	Training Set 5 Positive	Test Set 5 Negative	Test Set 5 Positive
5-FU	ANIT	BAP	CCL4
AMPB	APAP	BEN	LPS
AZA	BRB	BUS	TET
CAD	DMN	CIS	
CAR		DEX	
CHCL3		DIF	
CHEX		ERY	
CHLOR		EST	
CLO		GEN	
CLOZ		HYD	
CMC		PBARB	
CPHOS		PEG	

CYCA		PUR	
DOX		STRZ	
ETH		TAM	
GAN		THEO	
ISON			
KETO			
MET			
NAL			
PHEN			
QUIN			

* For abbreviations please see Table 1 (Compound, Dose, Abbreviation, etc.)

** Negative= Compounds that did not elicit histopathology (score=1)

Positive= Compounds that did elicit histopathology (score of 2 or greater)

Table 3. List of Genes, Whose Expression at 24h Directly Correlates with Liver Necrosis at 72h, Ranked by Pearson Correlation Coefficient

Gene	Correlation Coefficient
Gadd153	0.649
Phase-1 RCT-179	0.641
Superoxide dismutase Mn	0.633
Gadd45	0.613
Phase-1 RCT-144	0.613
Calpactin I heavy chain	0.611
Phase-1 RCT-207	0.603
14-3-3 zeta	0.593
Gamma-actin, cytoplasmic	0.590
Cyclin G	0.574
Cathepsin L, sequence 2	0.572
Macrophage inflammatory protein-2 alpha	0.566
Phase-1 RCT-68	0.560
Zinc finger protein	0.553
Multidrug resistant protein-2	0.546
Phase-1 RCT-225	0.545
Melanoma-associated antigen ME491	0.544
60S ribosomal protein L6	0.540
Integrin beta1	0.539
Organic cation transporter 3	0.537
Phase-1 RCT-49	0.534
Heme oxygenase	0.533
Phase-1 RCT-205	0.531
Phase-1 RCT-242	0.530
Uncoupling protein 2	0.528
IgE binding protein	0.524
Phase-1 RCT-50	0.515
Phase-1 RCT-213	0.515
Nucleoside diphosphate kinase beta isoform	0.512
IkB-a	0.511
Phase-1 RCT-39	0.509
Endogenous retroviral sequence, 5' and 3' LTR	0.508
Phase-1 RCT-192	0.507
Phase-1 RCT-109	0.504
Phase-1 RCT-145	0.504
Phase-1 RCT-152	0.503
Phase-1 RCT-154	0.502

Voltage-dependent anion channel (Vdac2)	0.502
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.499
PAR interacting protein	0.498
Insulin-like growth factor binding protein 1	0.495
Cofilin	0.493
Ribosomal protein L13A	0.493
Pyruvate kinase, muscle	0.493
Beta-actin	0.492
60S ribosomal protein L6 (alternate clone 1)	0.492
Phase-1 RCT-37	0.482
Phase-1 RCT-72	0.481
ID-1	0.478
Thymosin beta-10	0.472
Osteoactivin	0.470
Multidrug resistant protein-1	0.466
Phase-1 RCT-127	0.463
p53	0.459
Phase-1 RCT-241	0.459
Elongation factor-1 alpha	0.457
Matrix metalloproteinase-1	0.457
c-myc	0.456
Phase-1 RCT-162	0.455
Beta-tubulin, class I	0.454
Interleukin-1 beta	0.451

Table 4 List of Genes, Whose Expression at 24h Inversely Correlates with Liver Necrosis at 72h, Ranked by Spearman Correlation Coefficient

Gene	Correlation Coefficient
Phase-1 RCT-21	-0.350
Phase-1 RCT-119	-0.350
Apolipoprotein C1	-0.353
Phase-1 RCT-164	-0.353
{Phase-1 RCT 98}	-0.355
HMG-CoA synthase, mitochondrial	-0.357
{Phase-1 RCT-200}	-0.358
Phase-1 RCT-161	-0.359
Aldehyde dehydrogenase 2	-0.359
Phase-1 RCT-117	-0.359
Phase-1 RCT-270	-0.359
Octamer binding protein 1	-0.361
Diazepam binding inhibitor	-0.362
Phase-1 RCT-189	-0.363
Phase-1 RCT-175	-0.364
Cytochrome P450 11A1	-0.365
Phase-1 RCT-123	-0.365
Phase-1 RCT-239	-0.365
Phase-1 RCT-64	-0.367
Phase-1 RCT-8	-0.371
Phase-1 RCT-131	-0.374
Preproalbumin, sequence 2	-0.376
Fatty acid synthase	-0.379
NADP-dependent isocitrate dehydrogenase, cytosolic	-0.380
Phase-1 RCT-290	-0.380
Extracellular-signal-regulated kinase 1	-0.380
ATPase inhibitor (rat mitochondrial IF1 protein)	-0.381
Phase-1 RCT-40	-0.381
Stem cell factor	-0.384
Phase-1 RCT-227	-0.384
Apolipoprotein AII	-0.387
NADH-cytochrome b5 reductase	-0.388
Histidine-rich glycoprotein	-0.390
Phase-1 RCT-280	-0.390
Methylacyl-CoA racemase alpha	-0.392
Contrapsin-like protease inhibitor (CPi-21)	-0.394
Phase-1 RCT-209	-0.394
Glutathione peroxidase	-0.398

Betaine homocysteine methyltransferase (BHMT)	-0.400
Aquaporin-3 (AQP3)	-0.403
Phase-1 RCT-233	-0.405
Sterol carrier protein 2	-0.407
Tryptophan hydroxylase	-0.408
Cytochrome P450 3A1	-0.409
Phase-1 RCT-83	-0.411
Senescence marker protein-30	-0.416
Phase-1 RCT-289	-0.416
Carbonic anhydrase III, sequence 2	-0.417
Phase-1 RCT-185	-0.418
Transthyretin	-0.419
Phase-1 RCT-181	-0.420
Sodium/bile acid cotransporter	-0.423
Paraoxonase 1	-0.426
Phase-1 RCT-128	-0.426
Phase-1 RCT-182	-0.430
Phase-1 RCT-296	-0.430
Phase-1 RCT-291	-0.431
Phase-1 RCT-264	-0.432
Phase-1 RCT-52	-0.437
Aldehyde dehydrogenase, microsomal	-0.442
Organic anion transporter 3	-0.442
Presenilin-1	-0.447
Phase-1 RCT-102	-0.449
Phase-1 RCT-89	-0.449
Phase-1 RCT-218	-0.450
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	-0.452
Liver fatty acid binding protein	-0.456
Apolipoprotein CIII	-0.456
Phase-1 RCT-88	-0.457
Phase-1 RCT-168	-0.457
Alpha 1 - inhibitor III	-0.461
Phase-1 RCT-288	-0.464
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	-0.465
Phase-1 RCT-33	-0.465
Phase-1 RCT-256	-0.466
Phase-1 RCT-36	-0.468
Dynamin-1 (D100)	-0.470
L-gulono-gamma-lactone oxidase	-0.472
Phase-1 RCT-38	-0.477
Phase-1 RCT-214	-0.478
Carbonic anhydrase III	-0.485
Matrin F/G	-0.489

Phase-1 RCT-92	-0.492
Hepatic lipase	-0.498
Phase-1 RCT-78	-0.507

Table 5 Predictive Genes for 24 Hour Expression Data

Gene Name	Combination Category
Gamma-actin, cytoplasmic	5
Matrin F/G	5
Phase-1 RCT-78	5
Cathepsin L, sequence 2	4
Gadd45	4
Phase-1 RCT-144	4
Phase-1 RCT-145	4
Phase-1 RCT-50	4
Phase-1 RCT-92	4
Zinc finger protein	4
14-3-3 zeta	3
Dynamin-1 (D100)	3
Insulin-like growth factor binding protein 1	3
L-gulonono-gamma-lactone oxidase	3
Ornithine decarboxylase	3
PAR interacting protein	3
Phase-1 RCT-128	3
Phase-1 RCT-180	3
Phase-1 RCT-182	3
Phase-1 RCT-207	3
Phase-1 RCT-213	3
Phase-1 RCT-256	3
Phase-1 RCT-258	3
Phase-1 RCT-264	3
Phase-1 RCT-271	3
Phase-1 RCT-288	3
Phase-1 RCT-33	3
Phase-1 RCT-36	3
Phase-1 RCT-38	3
Phase-1 RCT-39	3
Phase-1 RCT-68	3
Phase-1 RCT-89	3
Phase-1 RCT-139	2
3-hydroxyisobutyrate dehydrogenase	2
60S ribosomal protein L6	2
Alpha 1 - inhibitor III	2
Bax (alpha)	2
Beta-actin	2
Carbonic anhydrase III	2
c-myc	2

Epidermal growth factor	2
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	2
Heme oxygenase	2
Hepatic lipase	2
ID-1	2
Insulin-like growth factor binding protein 3	2
Integrin beta1	2
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	2
Organic anion transporter 3	2
Paraoxonase 1	2
Phase-1 RCT-102	2
Phase-1 RCT-117	2
Phase-1 RCT-123	2
Phase-1 RCT-152	2
Phase-1 RCT-179	2
Phase-1 RCT-189	2
Phase-1 RCT-191	2
Phase-1 RCT-241	2
Phase-1 RCT-270	2
Phase-1 RCT-291	2
Voltage-dependent anion channel (Vdac2)	2
Phase-1 RCT-296	2
Phase-1 RCT-40	2
Phase-1 RCT-48	2
Phase-1 RCT-49	2
Phase-1 RCT-83	2
Ribosomal protein S17	2
Senescence marker protein-30	2
60S ribosomal protein L6 (alternate clone 1)	1
25-DX	1
Aflatoxin B1 aldehyde reductase	1
Aldehyde dehydrogenase, microsomal	1
Alpha-2-macroglobulin	1
Apolipoprotein CIII	1
Argininosuccinate lyase	1
ATPase inhibitor (rat mitochondrial IF1 protein)	1
Beta-tubulin, class I	1
Calpactin I heavy chain	1
Carbamyl phosphate synthetase I	1
Carbonyl reductase	1
c-H-ras	1
c-jun	1

Cofilin	1
Cyclin G	1
DNA polymerase beta	1
Elongation factor-1 alpha	1
Endogenous retroviral sequence, 5' and 3' LTR	1
Enolase alpha	1
Extracellular-signal-regulated kinase 1	1
Fas antigen	1
Gadd153	1
Glucose-regulated protein 78	1
IgE binding protein	1
IkB-a	1
Insulin-like growth factor I	1
Liver fatty acid binding protein	1
Macrophage inflammatory protein-1 alpha	1
Macrophage inflammatory protein-2 alpha	1
MAP kinase kinase	1
Matrix metalloproteinase-1	1
Melanoma-associated antigen ME491	1
Monocyte chemotactic protein receptor (CCR2)	1
Multidrug resistant protein-1	1
Multidrug resistant protein-2	1
NADPH quinone oxidoreductase-1 (DT-diaphorase)	1
Nucleoside diphosphate kinase beta isoform	1
p53	1
Phase-1 RCT 252	1
Phase-1 RCT-109	1
Phase-1 RCT-12	1
Phase-1 RCT-127	1
Phase-1 RCT-137	1
Phase-1 RCT-15	1
Phase-1 RCT-154	1
Phase-1 RCT-162	1
Phase-1 RCT-168	1
Phase-1 RCT-181	1
Phase-1 RCT-185	1
Phase-1 RCT-192	1
Phase-1 RCT-205	1
Phase-1 RCT-214	1
Phase-1 RCT-225	1
Phase-1 RCT-239	1
Phase-1 RCT-242	1
Phase-1 RCT-37	1
Phase-1 RCT-55	1

Phase-1 RCT-65	1
Phase-1 RCT-72	1
Phase-1 RCT-88	1
Proliferating cell nuclear antigen gene	1
Pyruvate kinase, muscle	1
Ref-1	1
Ribosomal protein L13A	1
Ribosomal protein S8	1
Ribosomal protein S9	1
Sodium/bile acid cotransporter	1
Superoxide dismutase Mn	1
T-cell cyclophilin	1
Thymosin beta-10	1
Transthyretin	1
Ubiquitin conjugating enzyme (RAD 6 homologue)	1
Uncoupling protein 2	1

* Combination category is the number of training/test set gene list occurrences.

Table 6 Randomly Selected Gene Subsets from 24 hour Combo All Gene Set (142 genes)*

<u>Rand 5</u>
Phase-1 RCT-117
Aflatoxin B1 aldehyde reductase
Phase-1 RCT-128
Insulin-like growth factor I
Phase-1 RCT-258

<u>Rand 10</u>
Phase-1 RCT-139
60S ribosomal protein L6
NADPH quinone oxidoreductase-1 (DT-diaphorase)
Liver fatty acid binding protein
MAP kinase kinase
Melanoma-associated antigen ME491
Pyruvate kinase, muscle
Phase-1 RCT-168
Phase-1 RCT-185
T-cell cyclophilin

<u>Rand 15</u>
Phase-1 RCT-192
Phase-1 RCT-191
Phase-1 RCT-15
Phase-1 RCT-189
Multidrug resistant protein-1
Cyclin G
Urinary protein 2 precursor
Phase-1 RCT-271
Phase-1 RCT-185
Phase-1 RCT-139
Phase-1 RCT-109
Phase-1 RCT-55
Phase-1 RCT-258
Phase-1 RCT-33
Argininosuccinate lyase

* Genes were randomly selected from the Combo All list of predictive genes (142 genes) assigning a random number to each gene, sorting by the random number and selecting the appropriate number of sorted genes.

Table 7 Randomly Selected Gene Subsets from
24 hour Combos 5, 4, 3 combined (32 genes)*

<u>Rand 5</u>
Phase-1 RCT-182
Phase-1 RCT-258
Phase-1 RCT-38
Phase-1 RCT-78
Gadd45

<u>Rand 10</u>
Phase-1 RCT-50
Phase-1 RCT-213
Phase-1 RCT-182
Phase-1 RCT-89
Dynamin-1 (D100)
Phase-1 RCT-38
PAR interacting protein
Phase-1 RCT-256
Phase-1 RCT-145
Phase-1 RCT-39

<u>Rand 15</u>
Phase-1 RCT-144
Phase-1 RCT-180
Phase-1 RCT-33
Zinc finger protein
Phase-1 RCT-288
Dynamin-1 (D100)
Phase-1 RCT-39
14-3-3 zeta
Insulin-like growth factor binding protein 1
Phase-1 RCT-78
Ornithine decarboxylase
L-gulonono-gamma-lactone oxidase
Cathepsin L, sequence 2
Phase-1 RCT-207
Phase-1 RCT-92

* Genes were randomly selected from the Combo 5, 4, and 3 combined list of predictive genes (32 genes) assigning a random number to each gene, sorting by the random number and selecting the appropriate number of sorted genes.

Table 8 Randomly Selected Gene Subsets from
24 hour All- Predictive (Nonpredictive) Genes

<u>All-Pred 10 genes</u>
Phenylalanine hydroxylase
Colony-stimulating factor-1
Ciliary neurotrophic factor
Ribosomal protein L13
S-adenosylmethionine decarboxylase
Notch 1
Phase-1 RCT-91
CTP:phosphocholine cytidyltransferase
Cytochrome P450 1A1
Phase-1 RCT-60

<u>All-Pred 5 genes</u>
Cellular nucleic acid binding protein (CNBP)
VL30 element
Hemoglobin alpha 1 chain (alternate clone)
Complement component C3
Thrombomodulin

<u>All-Pred 15 genes</u>
Nucleosome assembly protein
Neutral endopeptidase 24.11 (enkephalinase)
Cyclin D1
Lactate dehydrogenase-B
Selenoprotein P
Clusterin
Biliverdin reductase
Phase-1 RCT-79
Caspase 3
Adrenomedullin
Ribosomal protein L13
Cytochrome P450 2C39 (alternate clone 2)
Phase-1 RCT-277
Carnitine palmitoyl-CoA transferase
Cytochrome P450 2D18

Table 9 Liver Toxicity Individual Sample Prediction Values for 24 Hour Data
Predictive Genes (Combined List and Subsets)

Gene Set	Number of Genes	Prediction Measure*			
		Accuracy**	False Positive**	False Negative**	Geometric Mean**
Combo All	142	0.924 (0.872 - 0.960)	0.074 (0.034 - 0.106)	0.100 (0.000 - 0.333)	0.917 (0.772 - 0.956)
Combo 5	3	0.896 (0.837 - 0.961)	0.105 (0.033 - 0.185)	0.089 (0.000 - 0.167)	0.901 (0.868 - 0.941)
Combo 4	7	0.857 (0.796 - 0.913)	0.146 (0.079 - 0.220)	0.128 (0.083 - 0.222)	0.862 (0.800 - 0.915)
Combo 3	22	0.865 (0.755 - 0.923)	0.145 (0.076 - 0.271)	0.050 (0.000 - 0.083)	0.900 (0.854 - 0.954)
Combo 2	36	0.912 (0.851 - 0.950)	0.088 (0.045 - 0.129)	0.100 (0.000 - 0.333)	0.904 (0.762 - 0.955)
Combo 1	74	0.894 (0.853 - 0.941)	0.094 (0.056 - 0.122)	0.206 (0.000 - 0.444)	0.844 (0.705 - 0.949)

* Prediction measures are given as means and range of values (in parentheses) for five training/test sets using 24 hour array data and gene lists as presented in Table _____. Unit of prediction was the animal and the predictive classification was for liver necrosis observed at 72 hours after treatment.

** Standard prediction measures were used as defined in Materials and Methods. These include:

Accuracy	proportion of total number of predictions that are correct
False positive rate	proportion of negative cases that are incorrectly classified as positive
False negative rate	proportion of positive cases that are incorrectly classified as negative
Geometric mean	performance measure that takes into account proportion of positive and negative cases

Table 10 Liver Toxicity Compound-Dose Prediction Values for 24 Hour Data Predictive Genes (Combined List and Subsets)

Gene Set	No. Genes	Prediction Measure*			
		Accuracy**	False Positive**	False Negative**	Geometric Mean**
Combo All	142	0.935 (0.879 - 0.971)	0.066 (0.032 - 0.100)	0.067 (0.000 - 0.333)	0.932 (0.775 - 0.984)
Combo 5	3	0.941 (0.879 - 1.000)	0.065 (0.000 - 0.133)	0.000 (0.000 - 0.000)	0.966 (0.931 - 1.000)
Combo 4	7	0.912 (0.879 - 0.943)	0.085 (0.032 - 0.133)	0.117 (0.000 - 0.333)	0.895 (0.775 - 0.967)
Combo 3	22	0.905 (0.758 - 0.971)	0.105 (0.032 - 0.267)	0.000 (0.000 - 0.000)	0.945 (0.856 - 0.984)
Combo 2	36	0.947 (0.909 - 0.971)	0.059 (0.032 - 0.100)	0.000 (0.000 - 0.000)	0.970 (0.949 - 0.984)
Combo 1	44	0.936 (0.879 - 0.971)	0.065 (0.032 - 0.100)	0.067 (0.000 - 0.333)	0.932 (0.775 - 0.984)

* Prediction measures are given as means and range of values (in parentheses) for five training/test sets using 24 hour array data and gene lists as presented in Table 35 and Table 5. Unit of prediction was compound-dose level and the predictive classification was for liver necrosis observed at 72 hours after treatment. Prediction for compound-dose was based on a majority of individual animal calls. In cases where there were an equal number of opposing calls or no calls a no-call was assigned to the compound-dose level.

** Standard prediction measures were used as defined in Materials and Methods. As described in Materials and Methods in cases where no prediction was made because the p-value ratio exceeded the cutoff-value (generally 0.5) the non-call was considered to be incorrect.

Table 11 Liver Toxicity Compound Prediction Values for 24 Hour Data Predictive Genes
(Combined List and Subsets)

Gene Set	Number of Genes	Prediction Measure*			
		Accuracy**	False Positive**	False Negative**	Geometric Mean**
Combo All	142	0.937 (0.842 - 1.000)	0.063 (0.000 - 0.125)	0.067 (0.000 - 0.333)	0.934 (0.764 - 1.000)
Combo 5	3	0.947 (0.895 - 1.000)	0.063 (0.000 - 0.125)	0.000 (0.000 - 0.000)	0.968 (0.935 - 1.000)
Combo 4	7	0.926 (0.842 - 1.000)	0.063 (0.000 - 0.125)	0.133 (0.000 - 0.333)	0.898 (0.764 - 1.000)
Combo 3	22	0.937 (0.842 - 1.000)	0.075 (0.000 - 0.188)	0.000 (0.000 - 0.000)	0.961 (0.901 - 1.000)
Combo 2	36	0.958 (0.895 - 1.000)	0.050 (0.000 - 0.125)	0.000 (0.000 - 0.000)	0.974 (0.935 - 1.000)
Combo 1	44	0.947 (0.842 - 1.000)	0.050 (0.000 - 0.125)	0.067 (0.000 - 0.333)	0.940 (0.764 - 1.000)

* Prediction measures are given as means and range of values (in parentheses) for five training/test sets using 24 hour array data and gene lists as presented in Table 35 and Table 5. Unit of prediction was the compound and the predictive classification was for liver necrosis observed at 72 hours after treatment. Compounds were considered toxic if any compound-dose level for that compound was predicted as toxic.

** Standard prediction measures were used as defined in Materials and Methods. As described in Materials and Methods in cases where no prediction was made because the p-value ratio exceeded the cutoff-value (generally 0.5) the non-call was considered to be incorrect.

Table 12 Individual Gene Predictions: Combo 5

Gene Name	Overall Correct Calls (%)			
	Mean	s.d.	min	max
Gamma-actin, cytoplasmic	89.2	4.5	84.0	95.1
Matrin F/G	82.0	8.1	74.8	91.1
RCT-078	76.5	18.8	50.5	91.1
Average Individual Combo 5	82.6	10.5	69.8	92.4
Minimum Individual Combo 5	76.5	4.5	50.5	91.1
Maximum Individual Combo 5	89.2	18.8	84.0	95.1

Table 13 Individual Gene Predictions: Combo 4

Gene Name	Overall Correct Calls (%)			
	Mean	s.d.	min	max
Gadd 45	80.9	8.7	70.2	92.1
Cathepsin L	77.3	9.1	67.0	90.0
Zinc Finger Protein	85.1	9.6	70.2	93.1
RCT-144	90.6	2.8	86.5	94.1
RCT-145	77.6	5.3	69.1	82.3
RCT-50	69.0	8.3	58.7	80.6
RCT-92	85.0	4.3	80.4	89.4
Average Combo 4	80.8	6.9	71.7	88.8
Minimum Individual Combo 4	69.0	2.8	58.7	80.6
Maximum Individual Combo 4	90.6	9.6	86.5	94.1

Table 14 Individual Gene Predictions: Combo 3

Gene Name	Overall Correct Calls (%)			
	Mean	s.d.	min	max
14-3-3 zeta	77.8	8.5	66.0	84.2
Dynamin-1 (D100)	51.0	19.0	30.1	81.7
Insulin-like growth factor binding protein 1	73.6	4.8	69.2	81.4
L-gulono-gamma-lactone oxidase	82.1	16.7	52.4	91.1
Ornithine decarboxylase	75.3	11.6	55.3	84.5
PAR interacting protein	81.8	3.9	77.9	88.2
Phase-1 RCT-128	58.2	24.9	27.7	85.6
Phase-1 RCT-180	62.3	7.2	52.1	71.6
Phase-1 RCT-182	56.3	30.7	28.4	90.4
Phase-1 RCT-207	77.0	7.7	69.6	89.4
Phase-1 RCT-213	74.3	4.8	68.1	80.8
Phase-1 RCT-256	67.3	20.2	41.5	86.1
Phase-1 RCT-258	81.5	7.1	71.3	88.3
Phase-1 RCT-264	65.8	26.7	28.7	88.4
Phase-1 RCT-271	65.2	28.5	34.0	91.1
Phase-1 RCT-288	65.3	30.4	26.7	88.5
Phase-1 RCT-33	69.4	27.0	38.6	90.4
Phase-1 RCT-36	77.2	27.6	27.9	91.1
Phase-1 RCT-38	57.9	21.5	37.2	83.2
Phase-1 RCT-39	78.4	8.5	71.6	93.1
Phase-1 RCT-68	67.5	13.2	52.5	88.5
Phase-1 RCT-89	69.5	16.1	45.2	86.2
Average Individual Combo 3	69.8	16.7	48.7	86.5
Minimum Individual Combo 3	51.0	3.9	26.7	71.6
Maximum Individual Combo 3	82.1	30.7	77.9	93.1

Table 15 Liver Toxicity Compound-Dose Prediction Values for 24 Hour Data with Random Gene Subsets

Gene Set	Random Subset	Prediction Measure*			
		Accuracy**	False Positive**	False Negative**	Geometric Mean**
Combo All	15	0.888 (0.812-0.943)	0.123 (0.065-0.200)	0	0.936 (0.894-0.967)
Combo All	10	0.815 (0.750-0.886)	0.174 (0.129-0.258)	0.3 (0-1.0)	0.670 (0-0.933)
Combo All	5	0.889 (0.857-0.914)	0.123 (0.097-0.161)	0	0.936 (0.916-0.950)
Combo 5 4 3	15	0.886 (0.719-0.972)	0.124 (0.031-0.300)	0	0.934 (0.837-0.984)
Combo 5 4 3	10	0.884 (0.829-0.941)	0.129 (0.065-0.194)	0	0.933 (0.898-0.967)
Combo 5 4 3	5	0.824 (0.8-0.844)	0.181 (0.161-0.194)	0.117 (0-0.333)	0.847 (0.748-0.913)

* Randomly selected sets of genes derived from the Combo sets are described in Tables 1-2.

* Prediction measures are given as means and range of values (in parentheses) for five training/test sets using 24 hour array data and random subsets of genes as presented in Table 35, Table 6, and Table 7. Unit of prediction was compound-dose and the predictive classification was for liver necrosis observed at 72 hours after treatment.

** Standard prediction measures were used as defined in Materials and Methods. As described in Materials and Methods in cases where no prediction was made because the p-value ratio exceeded the cutoff-value (generally 0.5) the non-call was considered to be incorrect.

Table 16 Comparison of Predictivity for Correct Liver Toxicity Classification and Random Classification Using Combo Gene Sets and Random Subsets and 24h data

Combo All	All Genes	92.4	(87.2- 96.0)	26.8	(20.4- 35.6)
	5 genes	83.9	(80.1- 86.1)	29.9	(15.5- 49.0)
	10 genes	78.0	(74.5- 81.6)	28.2	(18.1- 33.0)

Gene List*	Gene Subset*	Accuracy			Accuracy		
		Correct Classification**			Random Classification**		
		Mean	Min - Max		Mean	Min. - Max.	
Combo 5 4 3	15 genes	86.2	(78.7- 90.3)		25.0	(17.0- 36.5)	
	All Genes	91.0	(86.2- 95)		27.4	(18.1- 36.6)	
	5 genes	79.9	(72.8- 91.3)		29.4	(26.5- 34.0)	
	10 genes	84.7	(81.6- 90.1)		28.2	(24.0- 32.7)	
	15 genes	82.5	(72.3- 91.3)		25.0	(13.8- 30.8)	
Combo 5	All Genes	89.6	(83.7- 96.1)		25.2	(22.8- 28.2)	
Combo 4	All Genes	85.7	(79.6- 91.3)		26.6	(17.0- 41.3)	
Combo 3	All Genes	86.5	(75.5- 92.3)		27.5	(21.3- 34.7)	
Combo 2	All Genes	91.2	(85.1- 95.0)		23.9	(18.1- 29.8)	
Combo 1	All Genes	89.4	(85.3- 94.1)		24.2	(18.8- 34.0)	
All - Predict	5 genes	47.4	(34.3- 63.5)		25.3	(19.8- 30.8)	
	10 genes	67.4	(59.2- 80.1)		24.7	(14.6- 30.9)	
	15 genes	45.9	(32.7- 63.5)		26.5	(15.8- 33.3)	

* Combo Gene Lists as in Example 1, Table 1. For Combo lists all genes were used or random subsets as in Tables 1-3. All-Pred used genes randomly selected from genes that were present on the array but not in the predictive list.

** Accuracy = proportion of the total number of predictions that are correct. Non-calls are counted as incorrect predictions. Accuracy was calculated for correct classifications of liver toxicity assigned to the samples and for randomized classifications in the same proportions as the correct classifications. Values presented are the mean accuracy values for 5 training/test sets with minimum and maximum accuracy values.

Table 17 Distribution of Compounds* in Individual Training
and Test Sets for 6 Hour Liver Data

Training and Test Set 1

Training Set 1 Negative	Training Set 1 Positive	Test Set 1 Negative	Test Set 1 Positive
5-FU	AFLB	BUS	APAP
AMPB	ANIT	CHCL3	CCL4
AZA	BRB	CHEX	TET
BAP	CAD	CMC	
BEN	DMN	CPHOS	
CAR	LPS	GAN	
CHLOR		HYD	
CIS		ISON	
CLO		MET	
CLOZ		PEG	
CYCA		PUR	
DEX		TAM	
DIF			
DOX			
ERY			
EST			
ETH			
GEN			
KETO			
NAL			
PBARB			
PHEN			
QUIN			
STRZ			
THEO			

Training and Test Set 2

Training Set 2 Negative	Training Set 2 Positive	Test Set 2 Negative	Test Set 2 Positive
AMPB	APAP	5-FU	AFLB
AZA	BRB	BEN	ANIT
BAP	CCL4	CHCL3	CAD
BUS	DMN	CHLOR	
CAR	LPS	CIS	
CHEX	TET	CLOZ	
CLO		CMC	

DEX		CPHOS	
DIF		CYCA	
DOX		KETO	
ERY		NAL	
EST		QUIN	
ETH			
GAN			
GEN			
HYD			
ISON			
MET			
PBARB			
PEG			
PHEN			
PUR			
STRZ			
TAM			
THEO			

Training and Test Set 3

Training Set 3 Negative	Training Set 3 Positive	Test Set 3 Negative	Test Set 3 Positive
AMPB	AFLB	5-FU	CCL4
AZA	ANIT	CHEX	DMN
BAP	APAP	CMC	LPS
BEN	BRB	CPHOS	
BUS	CAD	CYCA	
CHCL3	TET	DOX	
CHLOR		MET	
CIS		NAL	
CLO		PHEN	
CLOZ		PUR	
DEX		QUIN	
DIF		THEO	
ERY			
EST			
ETH			
GAN			
GEN			
HYD			
ISON			

KETO			
PBARB			
PEG			
STRZ			
TAM			
CAR			

Training and Test Set 4

Training Set 4 Negative	Training Set 4 Positive	Test Set 4 Negative	Test Set 4 Positive
5-FU	ANIT	AZA	AFLB
AMPB	APAP	BAP	CCL4
BEN	BRB	CHEX	TET
BUS	CAD	CLOZ	
CAR	DMN	DIF	
CHCL3	LPS	DOX	
CHLOR		ETH	
CIS		HYD	
CLO		PEG	
CMC		PHEN	
CPHOS		PUR	
CYCA		QUIN	
DEX			
ERY			
EST			
GAN			
GEN			
ISON			
KETO			
MET			
NAL			
PBARB			
STRZ			
TAM			
THEO			

Training and Test Set 5

Training Set 5 Negative	Training Set 5 Positive	Test Set 5 Negative	Test Set 5 Positive
5-FU	AFLB	AZA	BRB

AMPB	ANIT	BAP	DMN
BEN	APAP	BUS	LPS
CAR	CAD	CLO	
CHCL3	CCL4	CLOZ	
CHEX	TET	DOX	
CHLOR		GEN	
CIS		MET	
CMC		NAL	
CPHOS		PEG	
CYCA		PHEN	
DIF		QUIN	
ERY			
EST			
ETH			
GAN			
HYD			
ISON			
KETO			
PBARB			
PUR			
STRZ			
TAM			
THEO			
DEX			

* For abbreviations please see Table 1 (Compound, Dose, Abbreviation, etc.)

** Negative= Compounds that did not elicit histopathology (score=1)

Positive= Compounds that did elicit histopathology (score of 2 or greater)

Table 18 List of Genes, Whose Expression at 6 h Directly Correlates with Liver Hepatocellular Necrosis at 72h, Ranked by Pearson Correlation Coefficient

Gene	Correlation Coefficient
Alpha-tubulin	0.6309915
Superoxide dismutase Mn	0.6104141
Cathepsin L	0.6078458
Gadd45	0.5948032
ID-1	0.5895025
Argininosuccinate lyase	0.5767352
c-fos	0.5752904
Beta-actin, sequence 2	0.5710737
c-H-ras	0.5661596
Phase-1 RCT-211	0.5653724
Thymosin beta-10	0.5610229
Gadd153	0.5517636
Uncoupling protein 2	0.5497988
Heme binding protein 23	0.5460188
Ribosomal protein L13A	0.5443944
alpha-1,2-fucosyltransferase	0.543632
Aldehyde dehydrogenase 2	0.5385723
Phase-1 RCT-50	0.5211563
Phase-1 RCT-109	0.5203465
Ecto-ATPase	0.5152093
Phase-1 RCT-24	0.5125332
Bax (alpha)	0.5095243
Phase-1 RCT-12	0.5075572
Bcl-2	0.5068672
Phase-1 RCT-49	0.5036029
Beta-tubulin, class I	0.4991521
Calreticulin	0.4985017
Multidrug resistant protein-3	0.4938303
ADP-ribosylation factor-like protein ARL184	0.490394
Transferrin	0.4883213
Cathepsin L, sequence 2	0.4877807
Diacylglycerol kinase zeta	0.4854465
Gamma-glutamyl transpeptidase	0.4848459
Phase-1 RCT-111	0.4843905
14-3-3 zeta	0.4822279
Dynein light chain 1	0.4804166
Insulin-like growth factor binding protein 1	0.479885

Phase-1 RCT-281	0.475073
Thiol-specific antioxidant (natural killer cell-enhancing factor B)	0.4740617
Cyclin dependent kinase 4	0.46983
Phase-1 RCT-68	0.4668504
Phase-1 RCT-144	0.4655095
MHC class I antigen RT1.A1(f) alpha-chain	0.4641322
c-jun	0.4638237
Macrophage inflammatory protein-2 alpha	0.4544662
Superoxide dismutase Cu/Zn	0.448226
Stathmin	0.4478989
Phase-1 RCT-179	0.447854
Phase-1 RCT-103	0.4475651
Insulin-like growth factor binding protein 5	0.4431518
Matrix metalloproteinase-1	0.4405304
Pyruvate kinase, muscle	0.4402392
Glyceraldehyde 3-phosphate dehydrogenase	0.4401766
Hypoxanthine-guanine phosphoribosyltransferase	0.4357165
Phase-1 RCT-221	0.4341553
Cyclin E	0.4337104
Peroxisomal 3-ketoacyl-CoA thiolase 2	0.4302424
Phase-1 RCT-27	0.4273592
Sorbitol dehydrogenase	0.4245579
Phase-1 RCT-198	0.4232769
Phase-1 RCT-43	0.4216533
Ornithine decarboxylase	0.4216079
Alpha-fibrinogen	0.4215826
Phase-1 RCT-53	0.4214711
Phase-1 RCT-147	0.4214167
Peroxisomal 3-ketoacyl-CoA thiolase 1	0.4176134
Voltage-dependent anion channel 2 (Vdac2)	0.4174675
Glutathione reductase	0.4137496
Tryptophan hydroxylase	0.4123288
Phase-1 RCT-240	0.4111351
Zinc finger protein	0.4091316
Phase-1 RCT-228	0.4057419
Phase-1 RCT-14	0.4046313

Table 19 List of Genes, Whose Expression at 6 h Inversely Correlates with Liver Necrosis at 72h, Ranked by Spearman Correlation Coefficient

Gene	Correlation Coefficient
Phase-1 RCT-36	-0.1515
Phase-1 RCT-92	-0.15161
Phase-1 RCT-143	-0.15557
Sarcoplasmic reticulum calcium ATPase	-0.15628
Cyclin dependent kinase 2	-0.15633
Gamma-glutamyl transpeptidase	-0.15636
Phase-1 RCT-285	-0.1569
Phase-1 RCT-292	-0.15855
Carbamyl phosphate synthetase I	-0.15946
Monoamine oxidase B	-0.16151
Phase-1 RCT-61	-0.16227
3-hydroxyisobutyrate dehydrogenase	-0.1642
Cytochrome P450 2C11	-0.16488
Phase-1 RCT-164	-0.16502
Vesicular monoamine transporter (VMAT)	-0.1656
Aspartate aminotransferase, mitochondrial	-0.16581
Axin	-0.16584
Phase-1 RCT-13	-0.16715
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	-0.16724
Oxygen regulated protein 150	-0.16861
Phase-1 RCT-177	-0.17261
Diacylglycerol kinase zeta	-0.17336
Very long-chain acyl-CoA synthetase	-0.17338
Phase-1 RCT-277	-0.17348
Phase-1 RCT-256	-0.17456
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	-0.17592
H-rev107	-0.17721
PTEN/MMAC1	-0.17816
Phase-1 RCT-289	-0.17819
Phase-1 RCT-271	-0.17868
Cyclin D3	-0.17914
Phase-1 RCT-280	-0.17953
Phase-1 RCT-209	-0.18117
Malate dehydrogenase, cytosolic	-0.18371
Extracellular-signal-regulated kinase 1	-0.1844

NADH-cytochrome b5 reductase	-0.18481
Phase-1 RCT-288	-0.18493
Phase-1 RCT-82	-0.18497
Phase-1 RCT-10	-0.18613
Organic anion transporter 3	-0.18615
Phase-1 RCT-52	-0.18746
Phase-1 RCT-287	-0.19026
Carbonic anhydrase II	-0.19132
Complement component C3	-0.1918
Protein tyrosine phosphatase alpha	-0.1925
Aldehyde dehydrogenase, microsomal	-0.19284
D-dopachrome tautomerase	-0.19309
Phase-1 RCT-218	-0.19413
Phase-1 RCT-89	-0.19423
Cytochrome P450 1A2	-0.19844
Phase-1 RCT-173	-0.20095
Phase-1 RCT-119	-0.20097
Matrin F/G	-0.20244
Phase-1 RCT-102	-0.20574
Cyclin dependent kinase 4	-0.20718
Hydroxysteroid sulfotransferase a	-0.20766
Lysyl hydroxylase	-0.20785
Phase-1 RCT-184	-0.2098
8-oxoguanine DNA glycosylase	-0.2129
JNK1 stress activated protein kinase	-0.21334
Glutamine synthetase	-0.2145
Phase-1 RCT-291	-0.2172
S-adenosylmethionine decarboxylase	-0.22017
NADP-dependent isocitrate dehydrogenase, cytosolic	-0.22819
Phase-1 RCT-182	-0.2292
DNA topoisomerase I	-0.23083
Selenoprotein P	-0.23114
C4b-binding protein	-0.23274
Alcohol dehydrogenase 1	-0.23292
Phase-1 RCT-83	-0.23342
Phase-1 RCT-78	-0.23557
17-beta hydroxysteroid dehydrogenase, type 2	-0.23694
Sterol carrier protein 2	-0.23977
Iron-responsive element-binding protein	-0.24103
Peroxisomal multifunctional enzyme type II	-0.24167
Phase-1 RCT-168	-0.24388
Phase-1 RCT-270	-0.24473
3-beta-hydroxysteroid dehydrogenase (HSD3B1)	-0.25101
Acetyl-CoA carboxylase	-0.2543
Emerin	-0.25719
Phase-1 RCT-73	-0.26044

Nucleosome assembly protein	-0.26213
Cytochrome P450 2E1	-0.26809
Thymidylate synthase	-0.27492
Phase-1 RCT-161	-0.28042
Cholesterol 7-alpha-hydroxylase (P450 VII)	-0.28206
Phase-1 RCT-40	-0.28754
Stem cell factor	-0.28765
Glucokinase	-0.30523
Tryptophan hydroxylase	-0.30775
Phase-1 RCT-214	-0.31173
Carbonic anhydrase III	-0.31836
Senescence marker protein-30	-0.37821

**Table 20 List of genes whose expression at 6 hours is predictive
of liver toxicity at 72 hours**

Gene Name	Combination Category*
Argininosuccinate lyase	5
Cathepsin L, sequence 2	5
c-myc	5
Gadd153	5
Gadd45	5
Heme oxygenase	5
Insulin-like growth factor binding protein 1	5
NIPK	5
Phase-1 RCT-207	5
Phase-1 RCT-50	5
Alpha-2-macroglobulin, sequence 2	4
c-jun	4
Phase-1 RCT-127	4
Phase-1 RCT-242	4
Phase-1 RCT-82	4
Pyruvate kinase, muscle	4
Zinc finger protein	4
Cyclin dependent kinase 4	3
Focal adhesion kinase (pp125FAK)	3
Glucokinase	3
Integrin beta1	3
Interferon related developmental regulator IFRD1 (PC4)	3
NGF-inducible anti-proliferative putative secreted protein (PC3)	3
Peroxisomal multifunctional enzyme type II	3
Phase-1 RCT-18	3
Phase-1 RCT-49	3
Phase-1 RCT-59	3
Phase-1 RCT-72	3
Phase-1 RCT-75	3
Proliferating cell nuclear antigen gene	3
Sarcoplasmic reticulum calcium ATPase	3
Senescence marker protein-30	3
14-3-3 zeta	2
Acetyl-CoA carboxylase	2
Activating transcription factor 3	2

C4b-binding protein	2
Carbonic anhydrase III	2
Cholesterol 7-alpha-hydroxylase (P450 VII)	2
Cytochrome P450 1A1	2
DNA topoisomerase I	2
Ferritin H-chain	2
ID-1	2
Iron-responsive element-binding protein	2
Macrophage inflammatory protein-1 alpha	2
Nucleosome assembly protein	2
Phase-1 RCT-110	2
Phase-1 RCT-123	2
Phase-1 RCT-15	2
Phase-1 RCT-169	2
Phase-1 RCT-177	2
Phase-1 RCT-179	2
Phase-1 RCT-182	2
Phase-1 RCT-197	2
Phase-1 RCT-214	2
Phase-1 RCT-65	2
Phase-1 RCT-71	2
Phase-1 RCT-139	1
3-beta-hydroxysteroid dehydrogenase (HSD3B1)	1
8-oxoguanine DNA glycosylase	1
Alcohol dehydrogenase 1	1
AT-3	1
Carnitine palmitoyl-CoA transferase	1
Caspase 6	1
Choline kinase	1
Cyclin D3	1
Cytochrome P450 2E1	1
Elongation factor-1 alpha	1
H-rev107	1
Insulin-like growth factor binding protein 5	1
Matrix metalloproteinase-1	1
Melanoma-associated antigen ME491	1
MHC class I antigen RT1.A1(f) alpha-chain	1
Neuropeptide Y	1
Phase-1 RCT-109	1
Protein O-mannosyltransferase 1 (Pomtl)	1
Phase-1 RCT-144	1
Phase-1 RCT-191	1
Phase-1 RCT-20	1
Phase-1 RCT-204	1

Phase-1 RCT-221	1
Phase-1 RCT-225	1
Phase-1 RCT-227	1
Phase-1 RCT-248	1
Phase-1 RCT-270	1
Phase-1 RCT-277	1
Phase-1 RCT-287	1
Phase-1 RCT-289	1
Phase-1 RCT-34	1
Phase-1 RCT-40	1
Phase-1 RCT-66	1
Phase-1 RCT-70	1
Phase-1 RCT-73	1
Phase-1 RCT-87	1
Preproalbumin	1
Protein kinase C alpha	1
Ribosomal protein L13A	1
Selenoprotein P	1
Tryptophan hydroxylase	1

* Combination category is the number of training/test set gene list occurrences.

Table 21 Liver Toxicity Compound-Dose Prediction Values for 6 Hour Data Predictive Genes (Combined List and Subsets)

Gene Set	Number of Genes	Prediction Measure*			
		Accuracy**	False Positive**	False Negative**	Geometric Mean**
Combo All	98	0.712 (0.610-0.833)	0.290 (0.100-0.431)	0.317 (0.000-0.750)	0.669 (0.474-0.804)
Combo 5	10	0.684 (0.597-0.756)	0.329 (0.186-0.477)	0.283 (0.000-0.750)	0.663 (0.451-0.794)
Combo 4	7	0.667 (0.623-0.756)	0.329 (0.200-0.431)	0.375 (0.000-0.625)	0.626 (0.545-0.754)
Combo 3	15	0.646 (0.534-0.704)	0.363 (0.254-0.508)	0.317 (0.083-0.500)	0.648 (0.598-0.722)
Combo 2	24	0.684 (0.571-0.833)	0.308 (0.100-0.462)	0.400 (0.000-0.750)	0.613 (0.474-0.744)
Combo 1	42	0.618 (0.494-0.846)	0.367 (0.086-0.569)	0.500 (0.167-0.750)	0.526 (0.385-0.617)

Table 22 Comparison of Predictivity for Correct Liver Toxicity Classification and Random Classification Using Combo Gene Sets 6 h data.

Gene List*	Gene Subset*	Accuracy			Accuracy		
		Correct Classification**			Random Classification**		
		Mean	Min	Max	Mean	Min.	Max.
Combo All	All Genes	0.712	(0.610	- 0.833)	0.199	(0.103	- 0.282)
Combo 5	All Genes	0.684	(0.597	- 0.756)	0.221	(0.090	- 0.288)
Combo 4	All Genes	0.667	(0.623	- 0.756)	0.231	(0.090	- 0.366)
Combo 3	All Genes	0.646	(0.534	- 0.704)	0.233	(0.143	- 0.324)
Combo 2	All Genes	0.684	(0.571	- 0.833)	0.244	(0.192	- 0.366)
Combo 1	All Genes	0.618	(0.494	- 0.846)	0.232	(0.128	- 0.273)

* Combo Gene Lists as in Example 1, Table 1. For Combo lists all genes were used for prediction.

** Accuracy = proportion of the total number of predictions that are correct. Non-calls are counted as incorrect predictions. Accuracy was calculated for correct classifications of liver toxicity assigned to the samples and for randomized classifications in the same proportions as the correct classifications. Values presented are the mean accuracy values for 5 training/test sets with minimum and maximum accuracy values.

Table 23 Distribution of Compounds* in Individual Training
and Test Sets for 72 Hour Liver Data

Training and Test Set 1

Training Set 1 Negative	Training Set 1 Positive	Test Set 1 Negative	Test Set 1 Positive
5-FU	APAP	BUS	AFLB
AMPB	BRB	CIS	ANIT
AZA	CCL4	CLOZ	DMN
BAP	LPS	CMC	
BEN	TET	DEX	
CAD		DIF	
CAR		ERY	
CHCL3		GAN	
CHEX		HYD	
CHLOR		PHEN	
CLO		QUIN	
CPHOS		STRZ	
CYCA		TAM	
DOX		THEO	
EST			
ETH			
GEN			
ISON			
KETO			
MET			
NAL			
PBARB			
PEG			
PUR			

Training and Test Set 2

Training Set 2 Negative	Training Set 2 Positive	Test Set 2 Negative	Test Set 2 Positive
5-FU	AFLB	AMPB	APAP
BAP	ANIT	AZA	CCL4
BUS	BRB	BEN	TET
CAR	DMN	CAD	
CHCL3	LPS	CHLOR	
CHEX		CLO	

CIS		DEX	
CLOZ		DOX	
CMC		EST	
CPHOS		ETH	
CYCA		KETO	
DIF		MET	
ERY		NAL	
GAN		PHEN	
GEN			
HYD			
ISON			
PBARB			
PEG			
PUR			
QUIN			
STRZ			
TAM			
THEO			

Training and Test Set 3

Training Set 3 Negative	Training Set 3 Positive	Test Set 3 Negative	Test Set 3 Positive
AMPB	APAP	5-FU	AFLB
BAP	BRB	AZA	ANIT
BEN	CCL4	CHEX	LPS
BUS	DMN	CLO	
CAD	TET	CMC	
CAR		CPHOS	
CHCL3		CYCA	
CHLOR		DIF	
CIS		EST	
CLOZ		HYD	
DEX		MET	
DOX		PEG	
ERY		PUR	
ETH		THEO	
GAN			
GEN			
ISON			
KETO			
NAL			
PBARB			
PHEN			

QUIN			
STRZ			
TAM			

Training and Test Set 4

Training Set 4 Negative	Training Set 4 Positive	Test Set 4 Negative	Test Set 4 Positive
5-FU	ANIT	AMPB	AFLB
AZA	APAP	BUS	BRB
BAP	CCL4	CAD	TET
BEN	DMN	CIS	
CAR	LPS	CLO	
CHCL3		CMC	
CHEX		ETH	
CHLOR		MET	
CLOZ		NAL	
CPHOS		PBARB	
CYCA		PEG	
DEX		PHEN	
DIF		PUR	
DOX		THEO	
ERY			
EST			
GAN			
GEN			
HYD			
ISON			
KETO			
QUIN			
STRZ			
TAM			

Training and Test Set 5

Training Set 5 Negative	Training Set 5 Positive	Test Set 5 Negative	Test Set 5 Positive
AZA	APAP	5-FU	AFLB
BAP	BRB	AMPB	ANIT
BUS	CCL4	BEN	LPS
CHEX	DMN	CAD	
CIS	TET	CAR	
CLO		CHCL3	
CLOZ		CHLOR	

CMC		CPHOS	
DEX		CYCA	
DIF		MET	
DOX		PBARB	
ERY		PEG	
EST		PHEN	
ETH		PUR	
GAN			
GEN			
HYD			
ISON			
KETO			
NAL			
QUIN			
STRZ			
TAM			
THEO			

* For abbreviations please see Table 1 (Compound, Dose, Abbreviation, etc.)

** Negative= Compounds that did not elicit histopathology (score=1)

Positive= Compounds that did elicit histopathology (score of 2 or greater)

Table 24 List of Genes, Whose Expression at 72 h Directly Correlates with Liver Necrosis at 72h, Ranked by Pearson Correlation Coefficient

Gene	Correlation Coefficient
Osteoactivin	0.7351
Calpactin I heavy chain	0.6821
IgE binding protein	0.6393
Stathmin	0.6238
Melanoma-associated antigen ME491	0.6196
Phase-1 RCT-68	0.6127
High affinity IgE receptor gamma chain (FcERlgamma)	0.5971
Phase-1 RCT-121	0.5840
Phase-1 RCT-179	0.5815
Gamma-actin, cytoplasmic	0.5770
Phase-1 RCT-154	0.5761
Thymosin beta-10	0.5760
Alpha-tubulin	0.5706
14-3-3 zeta	0.5688
Voltage-dependent anion channel (Vdac2)	0.5651
Phase-1 RCT-192	0.5593
Phase-1 RCT-138	0.5574
Uncoupling protein 2	0.5476
Phase-1 RCT-24	0.5383
Beta-actin	0.5285
60S ribosomal protein L6	0.5232
Phase-1 RCT-146	0.5016
Collagen type II	0.4978
Cofilin	0.4868
Beta-tubulin, class I	0.4827
Pyruvate kinase, muscle	0.4816
Calpain 2	0.4808
Annexin V	0.4786
Phase-1 RCT-144	0.4773
Phase-1 RCT-207	0.4762
Organic cation transporter 3	0.4760
Phase-1 RCT-12	0.4744
Tissue inhibitor of metalloproteinases-1	0.4729

Beta-actin, sequence 2	0.4674
Phase-1 RCT-293	0.4623
Cyclin G	0.4586
Cathepsin S	0.4472
Multidrug resistant protein-2	0.4446
Phase-1 RCT-211	0.4420
Multidrug resistant protein-1	0.4402
Cyclin D1	0.4382
Nucleoside diphosphate kinase beta isoform	0.4331
Biliverdin reductase	0.4310
60S ribosomal protein L6 (alternate clone 1)	0.4308
Phase-1 RCT-215	0.4231
Cathepsin B	0.4180
Phase-1 RCT-37	0.4077
Ribosomal protein S8	0.4072
Ribosomal protein S9	0.4040
Heme oxygenase	0.4033
CD44 metastasis suppressor gene	0.4021

Table 25 List of Genes, Whose Expression at 72 h Inversely Correlates with Liver Necrosis at 72h, Ranked by Spearman Correlation Coefficient

Gene	Correlation Coefficient
Phase-1 RCT-123	-0.2509
Phase-1 RCT-185	-0.2516
Cholesterol esterase	-0.2518
C-reactive protein	-0.2518
Phase-1 RCT-260	-0.2536
Retinol dehydrogenase type III	-0.2543
Phase-1 RCT-67	-0.2561
Aquaporin-3 (AQP3)	-0.2565
NADH-cytochrome b5 reductase	-0.2585
Phase-1 RCT-278	-0.2604
Interferon inducible protein 10	-0.2662
Acetylcholine receptor epsilon	-0.2675
CDK108	-0.2676
Phase-1 RCT-219	-0.2683
Phase-1 RCT-73	-0.2685
Phase-1 RCT-29	-0.2707
Gap junction membrane channel protein beta 1 (Gjb1)	-0.2731
Phase-1 RCT-285	-0.2735
Phase-1 RCT-38	-0.2746
Cytochrome P450 2D18	-0.2768
Phase-1 RCT-227	-0.2774
Matrin F/G	-0.2781
Phase-1 RCT-33	-0.2809
Phase-1 RCT-280	-0.2818
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	-0.2827
L-gulonogamma-lactone oxidase	-0.2837
Aryl sulfotransferase	-0.2838
alpha-1,2-fucosyltransferase	-0.2848
Phase-1 RCT-98	-0.2853
Urinary protein 2 precursor	-0.2874
Tyrosine hydroxylase	-0.2897
Cytochrome P450 3A1	-0.2910

NIPK	-0.2926
Protein tyrosine phosphatase, receptor type, D	-0.2952
Contrapsin-like protease inhibitor (CPi-21)	-0.2961
Phase-1 RCT-187	-0.2963
Connexin-32	-0.2995
Phase-1 RCT-81	-0.2999
Phase-1 RCT-256	-0.3038
Cytochrome P450 2A3	-0.3078
Insulin-like growth factor I	-0.3079
Apolipoprotein CIII	-0.3097
Phase-1 RCT-292	-0.3099
Phase-1 RCT-178	-0.3122
Phase-1 RCT-102	-0.3187
Arginosuccinate synthetase 1	-0.3193
Fatty acid synthase	-0.3234
Aldehyde dehydrogenase 2	-0.3355
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	-0.3355
Phase-1 RCT-48	-0.3428
Phase-1 RCT-149	-0.3456
Phase-1 RCT-117	-0.3466
JNK1 stress activated protein kinase	-0.3517
Phase-1 RCT-36	-0.3552
Phase-1 RCT-78	-0.3568
Phase-1 RCT-164	-0.3596
Stearyl-CoA desaturase, liver	-0.3666
Glycine methyltransferase	-0.3758
Dynamin-1 (D100)	-0.3774
Betaine homocysteine methyltransferase (BHMT)	-0.3779
Phase-1 RCT-107	-0.3869
Cytochrome P450 2C11	-0.3876
Phase-1 RCT-290	-0.4002
Apolipoprotein AII	-0.4022
Insulin-like growth factor I, exon 6	-0.4110
Alpha-2-microglobulin	-0.4294

Table 26 List of genes whose expression at 72 hours is predictive of liver toxicity at 72 hours

Gene Name	Combination Category
Calpactin I heavy chain	5
Osteoactivin	5
60S ribosomal protein L6	4
Collagen type II	4
Gamma-actin, cytoplasmic	4
Glycine methyltransferase	4
High affinity IgE receptor gamma chain (FcERIgamma)	4
IgE binding protein	4
Phase-1 RCT-179	4
Phase-1 RCT-192	4
Stathmin	4
Thymosin beta-10	4
Uncoupling protein 2	4
Alpha-2-microglobulin	3
Alpha-tubulin	3
Biliverdin reductase	3
Cofilin	3
Heme oxygenase	3
Melanoma-associated antigen ME491	3
Multidrug resistant protein-2	3
Phase-1 RCT-121	3
Phase-1 RCT-138	3
Phase-1 RCT-146	3
Voltage-dependent anion channel (Vdac2)	3
Phase-1 RCT-39	3
Phase-1 RCT-68	3
Ribosomal protein S9	3
14-3-3 zeta	2
Adenine nucleotide translocator 1	2
Alpha-2-macroglobulin, sequence 2	2
Annexin V	2
Beta-actin	2
Beta-actin, sequence 2	2
Beta-tubulin, class I	2
Calpain 2	2

Cyclin D1	2
Cystatin C	2
Cytochrome P450 2C11	2
Glutathione S-transferase theta-1	2
Insulin-like growth factor I, exon 6	2
Multidrug resistant protein-1	2
Nucleoside diphosphate kinase beta isoform	2
Organic cation transporter 3	2
Phase-1 RCT-107	2
Phase-1 RCT-12	2
Phase-1 RCT-144	2
Phase-1 RCT-154	2
Phase-1 RCT-207	2
Phase-1 RCT-211	2
Phase-1 RCT-215	2
Phase-1 RCT-24	2
Phase-1 RCT-78	2
Phase-1 RCT-81	2
60S ribosomal protein L6 (alternate clone 1)	1
Aldehyde dehydrogenase 2	1
Alpha-1 microglobulin/bikunin precursor (Ambp)	1
Alpha-prothymosin	1
Apolipoprotein AII	1
Apolipoprotein C1	1
Apolipoprotein CIII	1
Arginosuccinate synthetase 1	1
Urinary protein 2 precursor	1
Betaine homocysteine methyltransferase (BHMT)	1
Cathepsin B	1
Cathepsin S	1
Cholesterol esterase	1
Connexin-32	1
Contrapsin-like protease inhibitor (CPi-21)	1
C-reactive protein	1
Cyclin G	1
Cytochrome P450 2C23	1
Cytochrome P450 2D18	1
Dynamin-1 (D100)	1
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	1

Fatty acid synthase	1
Gap junction membrane channel protein beta 1 (Gjb1)	1
Hypoxanthine-guanine phosphoribosyltransferase	1
Insulin-like growth factor I	1
Interleukin-18	1
JNK1 stress activated protein kinase	1
Lecithin:cholesterol acyltransferase	1
L-gulonono-gamma-lactone oxidase	1
Matrin F/G	1
NADH-cytochrome b5 reductase	1
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	1
p53	1
p55CDC	1
Phase-1 RCT-102	1
Phase-1 RCT-109	1
Phase-1 RCT-145	1
Phase-1 RCT-149	1
Phase-1 RCT-164	1
Phase-1 RCT-173	1
Phase-1 RCT-185	1
Phase-1 RCT-187	1
Phase-1 RCT-219	1
Phase-1 RCT-227	1
Phase-1 RCT-230	1
Phase-1 RCT-256	1
Phase-1 RCT-278	1
Phase-1 RCT-285	1
Phase-1 RCT-290	1
Phase-1 RCT-292	1
Phase-1 RCT-293	1
Phase-1 RCT-33	1
Phase-1 RCT-36	1
Phase-1 RCT-37	1
Phase-1 RCT-38	1
Phase-1 RCT-48	1
Phase-1 RCT-58	1
Phase-1 RCT-61	1
Proliferating cell nuclear antigen gene	1
Protein tyrosine phosphatase, receptor type, D	1

PTEN/MMAC1	1
Pyruvate kinase, muscle	1
Retinol dehydrogenase type III	1
Ribosomal protein S8	1
Stearyl-CoA desaturase, liver	1
Thymidylate synthase	1
Ubiquitin conjugating enzyme (RAD 6 homologue)	1
Zinc finger protein	1

* Combination category is the number of training/test set gene list occurrences.

Table 27 Liver Toxicity Compound-Dose Prediction Values
for 72 Hour Data Predictive Genes (Combined List and Subsets)

Gene List		Prediction Measure* **			
		Accuracy	False Positive Rate	False Negative Rate	Geometric Mean 2
Combo All	Mean	0.790	0.192	0.342	0.729
	Minimum	0.690	0.134	0.250	0.642
	Maximum	0.835	0.293	0.417	0.775
Combo 5	Mean	0.641	0.351	0.417	0.615
	Minimum	0.523	0.209	0.333	0.513
	Maximum	0.772	0.474	0.500	0.726
Combo 4	Mean	0.749	0.226	0.417	0.664
	Minimum	0.652	0.147	0.333	0.533
	Maximum	0.823	0.350	0.667	0.753
Combo 3	Mean	0.715	0.269	0.400	0.660
	Minimum	0.699	0.244	0.333	0.558
	Maximum	0.747	0.293	0.583	0.710
Combo 2	Mean	0.713	0.261	0.500	0.602
	Minimum	0.644	0.192	0.333	0.524
	Maximum	0.767	0.320	0.625	0.710
Combo 1	Mean	0.570	0.449	0.275	0.631
	Minimum	0.529	0.403	0.125	0.551
	Maximum	0.620	0.480	0.417	0.692

* Prediction measures are given as means and range of values for five training/test sets using 72 hour array data and gene lists as presented in Example 5. Unit of prediction was the animal and the predictive classification was for liver necrosis observed at 72 hours after treatment.

** Standard prediction measures were used as defined in Materials and Methods. As described in Materials and Methods In these analyses cases where no prediction was made because the p-value ratio exceeded the cutoff-value (generally 0.5) the non-call was considered to be incorrect.

Table 28 Comparison of Predictivity for Correct Liver Toxicity Classification and Random Classification Using Combo Gene Sets 72 h data

Gene List		Accuracy * **	
		Correct Classification	Random Classification
Combo All	Mean	0.790	0.229
	Minimum	0.690	0.035
	Maximum	0.835	0.316
Combo 5	Mean	0.641	0.263
	Minimum	0.523	0.124
	Maximum	0.772	0.418
Combo 4	Mean	0.749	0.257
	Minimum	0.652	0.186
	Maximum	0.823	0.391
Combo 3	Mean	0.715	0.281
	Minimum	0.699	0.161
	Maximum	0.747	0.367
Combo 2	Mean	0.713	0.211
	Minimum	0.644	0.115
	Maximum	0.767	0.304
Combo 1	Mean	0.570	0.235
	Minimum	0.529	0.023
	Maximum	0.620	0.354

* Combo Gene Lists as in Example 1, Table 1. For Combo lists all genes were used for prediction.

** Accuracy = proportion of the total number of predictions that are correct. Non-calls are counted as incorrect predictions. Accuracy was calculated for correct classifications of liver toxicity assigned to the samples and for randomized classifications in the same proportions as the correct classifications. Values presented are the mean accuracy values for 5 training/test sets with minimum and maximum accuracy values.

Table 29 Prediction of Liver Toxicity for Samples External to Database

Predicting Gene Set*	Treatment	Animal	Prediction Values**					
			Prediction	P-Value Ratio	No Votes	No P-Value	Yes Votes	Yes P Value
Combo 6	Cephaloridine 1500 mg/kg i.p. 24 h	501	yes	0.000	0	1	10	0
Combo 6	Cephaloridine 1500 mg/kg i.p. 24 h	506	yes	0.000	0	1	10	0
Combo 6	Cephaloridine 1500 mg/kg i.p. 24 h	508	yes	0.000	0	1	10	0
Combo 6	Cisplatin 20 mg/kg i.p. 24 h	602	yes	0.000	2	1	8	0
Combo 6	Cisplatin 20 mg/kg i.p. 24 h	603	yes	0.000	0	1	10	0
Combo 6	Cisplatin 20 mg/kg i.p. 24 h	604	yes	0.000	0	1	10	0
Combo 5	Cephaloridine 1500 mg/kg i.p. 24 h	501	yes	0.001	4	1	6	0.001
Combo 5	Cephaloridine 1500 mg/kg i.p. 24 h	506	yes	0.000	1	1	9	0
Combo 5	Cephaloridine 1500 mg/kg i.p. 24 h	508	yes	0.000	2	1	8	0
Combo 5	Cisplatin 20 mg/kg i.p. 24 h	602	yes	0.208	7	0.945	3	0.197
Combo 5	Cisplatin 20 mg/kg i.p. 24 h	603	yes	0.208	7	0.945	3	0.197
Combo 5	Cisplatin 20 mg/kg i.p. 24 h	604	yes	0.001	4	1	6	0.001
Combo 4	Cephaloridine 1500 mg/kg i.p. 24 h	501	yes	0.000	1	1	9	0
Combo 4	Cephaloridine 1500 mg/kg i.p. 24 h	506	yes	0.000	2	1	8	0
Combo 4	Cephaloridine 1500 mg/kg i.p. 24 h	508	yes	0.000	0	1	10	0
Combo 4	Cisplatin 20 mg/kg i.p. 24 h	602	yes	0.010	5	0.999	5	0.01
Combo 4	Cisplatin 20 mg/kg i.p. 24 h	603	yes	0.000	1	1	9	0
Combo 4	Cisplatin 20 mg/kg i.p. 24 h	604	yes	0.000	1	1	9	0
Combo 3	Cephaloridine 1500 mg/kg i.p. 24 h	501	yes	0.001	4	1	6	0.001
Combo 3	Cephaloridine 1500 mg/kg i.p. 24 h	506	yes	0.208	7	0.945	3	0.197
Combo 3	Cephaloridine 1500 mg/kg i.p. 24 h	508		0.606	8	0.803	2	0.487
Combo 3	Cisplatin 20 mg/kg i.p. 24 h	602	yes	0.208	7	0.945	3	0.197
Combo 3	Cisplatin 20 mg/kg i.p. 24 h	603	yes	0.001	4	1	6	0.001
Combo 3	Cisplatin 20 mg/kg i.p. 24 h	604	yes	0.055	6	0.99	4	0.055
Combo 2	Cephaloridine 1500 mg/kg i.p. 24 h	501	yes	0.000	3	1	7	0
Combo 2	Cephaloridine 1500 mg/kg i.p. 24 h	506	yes	0.000	3	1	7	0
Combo 2	Cephaloridine 1500 mg/kg i.p. 24 h	508	yes	0.000	3	1	7	0
Combo 2	Cisplatin 20 mg/kg i.p. 24 h	602	yes	0.010	5	0.999	5	0.01
Combo 2	Cisplatin 20 mg/kg i.p. 24 h	603	yes	0.000	3	1	7	0
Combo 2	Cisplatin 20 mg/kg i.p. 24 h	604	yes	0.000	2	1	8	0
Combo 1	Cephaloridine 1500 mg/kg i.p. 24 h	501	yes	0.000	1	1	9	0
Combo 1	Cephaloridine 1500 mg/kg i.p. 24 h	506	yes	0.000	1	1	9	0
Combo 1	Cephaloridine 1500 mg/kg i.p. 24 h	508	yes	0.000	3	1	7	0
Combo 1	Cisplatin 20 mg/kg i.p. 24 h	602	yes	0.001	4	1	6	0.001
Combo 1	Cisplatin 20 mg/kg i.p. 24 h	603	yes	0.000	3	1	7	0
Combo 1	Cisplatin 20 mg/kg i.p. 24 h	604	yes	0.000	3	1	7	0

* All genes used for Combo Gene Lists as in Example 1, Table 1.

** Prediction values are output from prediction program. Values include prediction (yes=liver toxicity predicted, no=no liver toxicity predicted), numbers of yes and no votes from 10 nearest neighbors, the p-value for the no and yes votes and the p-value ratio for the predicted class over the not predicted class. A p-value ratio cutoff of 0.5 was used

Table 30 K-means Cluster Analysis of Combo 5, 4, 3 and 2 Gene Set

Cluster 1	Cluster 2	Cluster 3
Gamma-actin, cytoplasmic	Senescence marker protein-30	RCT-78
Insulin-like growth factor binding protein 1	RCT-33	L-gulonono-gamma-lactone oxidase
RCT-68	RCT-36	RCT-256
RCT-39	RCT-139	RCT-38
Integrin beta1		RCT-296
Zinc finger protein		RCT-92
RCT-50		Dynamin-1 (D100)
c-myc		RCT-128
RCT-144		RCT-264
PAR interacting protein		RCT-89
RCT-145		RCT-270
RCT-49		RCT-182
RCT-213		RCT-291
RCT-258		Hepatic lipase
RCT-241		RCT-271
Gadd45		Matrin F/G
Heme oxygenase		RCT-288
14-3-3 zeta		RCT-189
Beta-actin		
Ornithine decarboxylase		
RCT-207		
Bax (alpha)		
ID-1		
RCT-180		
RCT-191		
Cluster 4	Cluster 5	Cluster 6
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	Phase-1 RCT-40	Alpha 1 - inhibitor III
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	3-hydroxyisobutyrate dehydrogenase	RCT-48
Paraoxonase 1		RCT-102
Insulin-like growth factor binding protein 3		RCT-117
RCT-83		
Epidermal growth factor		
Cluster 7	Cluster 8	
Cathepsin L, sequence 2	Carbonic anhydrase III	
RCT-179	Organic anion transporter 3	
Ribosomal protein S17	RCT-123	

RCT-152		
60S ribosomal protein L6		
Voltage-dependent anion channel 2 (Vdac2)		

Table 31 RCT genes (ESTs) Predictive for Liver Necrosis at 72 hours:
Best Homology Matches

Gene Name	Homology
RCT-102	Mouse pentylenetetrazol-related mRNA PTZ-17 (3'UTR of E3.1)
RCT-107	no significant homology found
RCT-109	Rattus norvegicus nesprin-1 mRNA
RCT-110	Homo sapiens, clone IMAGE:3677434, mRNA
RCT-117	no significant homology found
RCT-12	no significant homology found
RCT-121	no significant homology found
RCT-123	no significant homology found
RCT-127	no significant homology found
RCT-128	Mus musculus angiopoietin-related protein 3 (Angptl3)
RCT-137	Mus musculus adult male tongue cDNA
RCT-138	Mus musculus DAP10 (Dap10) gene
RCT-139	no significant homology found
RCT-144	Mus musculus, similar to nucleolar protein (KKE/D repeat), clone IMAGE:3491448, mRNA, partial cds.
RCT-145	Mus musculus 10 day old male pancreas cDNA, RIKEN full-length enriched library, clone:1810014B19, full insert sequence
RCT-146	Mus musculus 8 days embryo cDNA, RIKEN full-length enriched library, clone:5730458E20
RCT-149	Mouse mRNA fragment for serum amyloid A (SAA) 3 protein
RCT-15	Mus musculus ubiquitin conjugating enzyme 7 mRNA, complete cds
RCT-152	Mus musculus, eukaryotic translation elongation factor 1 beta 2, clone MGC:6763 IMAGE:3600850, mRNA, complete cds.
RCT-154	Mus musculus vacuolar ATPase subunit D (Atp6m) mRNA, complete cds
RCT-162	Mus musculus, clone IMAGE:3501507
RCT-164	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4932443D16
RCT-168	M.musculus mRNA for low density lipoprotein receptor, ACCESSION X64414 S51850
RCT-169	Mus musculus, small inducible cytokine B subfamily (Cys-X-Cys), member 9, clone MGC:6179 IMAGE:3257716, mRNA, complete
RCT-173	Mus musculus NADP+-specific isocitrate dehydrogenase mRNA, complete cds; nuclear gene for mitochondrial product
RCT-177	Mus musculus, Similar to peroxisomal delta3, delta2-enoyl-Coenzyme A isomerase, clone MGC:5644 IMAGE:3591615
RCT-179	Rat nucleolar protein B23.2 mRNA
RCT-18	no significant homology found
RCT-180	Mus musculus B-cell receptor-associated protein 37 (Bcap37
RCT-181	Mus musculus adult male testis cDNA
RCT-182	Rattus norvegicus glb mRNA for diacetyl/L-xylulose reductase
RCT-185	no significant homology found

RCT-187	Mus musculus 11 days pregnant adult female ovary and uterus cDNA, RIKEN full-length enriched library, clone:5033416F05, full insert sequence
RCT-189	Rattus norvegicus eukaryotic translation initiation factor 4E (Eif4e), mRNA
RCT-191	Mus musculus, Similar to proteasome (prosome, macropain) 26S subunit, non-ATPase, 3, clone MGC:6405 IMAGE:3586427, mRNA, complete cds
RCT-192	Mus musculus 18 days embryo cDNA, RIKEN full-length enriched library, clone:1110033J19
RCT-197	Rattus norvegicus Protein kinase, interferon-inducible double stranded RNA dependent (Prkr), mRNA
RCT-20	Mus musculus cysteine and histidine-rich domain (CHORD)-containing,
RCT-204	Mouse DNA sequence from clone RP23-138F20 on chromosome 13, complete sequence [Mus musculus]
RCT-205	no significant homology found
RCT-207	Mus musculus Ran binding protein 5 mRNA, partial cds
RCT-211	Mus musculus adult male kidney cDNA, RIKEN full-length enriched library, clone:0610009C22
RCT-213	Homo sapiens pM5 protein (PM5), mRNA
RCT-214	Mus musculus putative NAD(P)H steroid dehydrogenase mRNA
RCT-215	Mus musculus RAB/Rip protein mRNA
RCT-219	Rattus norvegicus 2'5' oligoadenylate synthetase-2 mRNA, complete cds
RCT-221	no significant homology found
RCT-225	Rattus norvegicus chromosome 4 clone RP31-327J16 strain Brown Norway, complete sequence
RCT-227	no significant homology found
RCT-230	Mus musculus GDP-dissociation inhibitor mRNA, preferentially expressed in hematopoietic cells, complete cds
RCT-239	Mus musculus adult male tongue cDNA, RIKEN full-length enriched library, clone:2300007B01, full insert sequence
RCT-24	Mus musculus, tubulin alpha 8, clone MGC:28850 IMAGE:4507364, mRNA,
RCT-241	Mus musculus oncostatin receptor (Osmr), mRNA
RCT-242	Rattus norvegicus B-cell translocation gene 2, anti-proliferative(Btg2),
RCT-248	Mus musculus claudin 18 (Cldn18-pending), mRNA
RCT-252	Mus musculus EH-domain containing 3 (Ehd3),
RCT-256	Mus musculus, Similar to betaine-homocysteine methyltransferase 2, clone MGC:19186 IMAGE:4235455
RCT-258	Mus musculus, clone MGC:6139 IMAGE:3487295, mRNA
RCT-264	Mus musculus sodium-sulfate cotransporter (Nas1) gene
RCT-270	Mus musculus, RIKEN cDNA 2010011I20 gene, clone MGC:27703, IMAGE:4924329, mRNA, complete cds
RCT-271	Homologous to Mus musculus, clone MGC:27581 IMAGE:4489072, mRNA
RCT-277	no significant homology found
RCT-278	Mus musculus brain protein 17 (Brp17), mRNA

RCT-285	Mus musculus, Similar to single Ig IL-1R-related protein, clone MGC:18899 IMAGE:4240425, mRNA, complete cds
RCT-287	Mus musculus adult male kidney cDNA clone:0610010120
RCT-288	no significant homology found
RCT-289	Mus musculus adult male liver cDNA, RIKEN full-length enriched library, clone:1300003K24, full insert sequence
RCT-290	Homo sapiens chromosome 14 clone BAC 201F1 map 14q24.3, complete sequence
RCT-291	no significant homology found
RCT-292	Rattus norvegicus 2'5' oligoadenylate synthetase-2
RCT-293	Mus musculus 18 days embryo cDNA, RIKEN full-length enriched library, clone:1110021C22
RCT-296	Mus musculus corticosteroid binding globulin (Cbg)
RCT-33	no significant homology found
RCT-34	no significant homology found
RCT-36	no significant homology found
RCT-37	no significant homology found
RCT-38	Mus musculus betaine-homocysteine methyltransferase 2 (Bhmt2) mRNA,
RCT-39	no significant homology found
RCT-40	Rattus norvegicus Cathepsin C (dipeptidyl peptidase I) (Ctsc)
RCT-48	Mus musculus adult male liver cDNA, RIKEN full-length enriched library, clone:1300003K24, full insert sequence
RCT-49	No match with score above 200
RCT-50	Mus musculus fibroblast growth factor regulated protein 2
RCT-55	M.musculus myoglobin gene exons 2-3
RCT-58	Rat mRNA for delta-4-3-ketosteroid 5-beta-reductase, complete cds
RCT-59	no significant homology found
RCT-61	no significant homology found
RCT-65	no significant homology found
RCT-66	M.musculus mRNA for low density lipoprotein receptor
RCT-68	Rattus norvegicus nucleosome assembly protein mRNA
RCT-70	Mus musculus adult male testis cDNA, RIKEN full-length enriched library, clone:4933406P04, full insert sequence
RCT-71	Mus musculus, clone MGC:11987 IMAGE:3601737, mRNA
RCT-72	no significant homology found
RCT-73	no significant homology found
RCT-75	Mus musculus adult male liver cDNA, RIKEN full-length enriched library, clone:1300002K09, full insert sequence
RCT-78	Mus musculus adult male lung cDNA, RIKEN full-length enriched library, clone:1200015G06, full insert sequence
RCT-81	no significant homology found
RCT-82	Mus musculus nucleosome binding protein 1 (Nsbp1),
RCT-83	no significant homology found
RCT-87	Mus musculus adult male tongue cDNA
RCT-88	no significant homology found
RCT-89	no significant homology found
RCT-92	no significant homology found

Table 33 Liver Hepatocellular Necrosis Predictive Genes Whose Protein Products Are Known to be Secreted
Apolipoprotein AII
Apolipoprotein C1
Apolipoprotein CIII
C4b-binding protein
C-reactive protein
Cystatin C
Epidermal growth factor
Ferritin H-chain
Insulin-like growth factor I
Insulin-like growth factor I, exon 6
Interleukin-18
Lecithin:cholesterol acyltransferase
Macrophage inflammatory protein-1 alpha
Macrophage inflammatory protein-2 alpha
Matrix metalloproteinase-1
NGF-inducible anti-proliferative putative secreted protein (PC3)
Selenoprotein P
T-cell cyclophilin
Transthyretin

Table 37 Predictive Performance of Predictive Genes Organized by Occurrence on Training/Test Set Lists (Combo number) and Time Point

Time Point	Gene Set	Number of Genes	Accuracy**	Geometric Mean**
24 h	Combo All	142	0.924 (0.872 - 0.960)	0.917 (0.772 - 0.956)
24 h	Combo 5	3	0.896 (0.837 - 0.961)	0.901 (0.868 - 0.941)
24 h	Combo 4	7	0.857 (0.796 - 0.913)	0.862 (0.800 - 0.915)
24 h	Combo 3	22	0.865 (0.755 - 0.923)	0.900 (0.854 - 0.954)
24 h	Combo 2	36	0.912 (0.851 - 0.950)	0.904 (0.762 - 0.955)
24 h	Combo 1	74	0.894 (0.853 - 0.941)	0.844 (0.705 - 0.949)
6 h	Combo All	98	0.712 (0.610-0.833)	0.669 (0.474-0.804)
6 h	Combo 5	10	0.684 (0.597-0.756)	0.663 (0.451-0.794)
6 h	Combo 4	7	0.667 (0.623-0.756)	0.626 (0.545-0.754)
6 h	Combo 3	15	0.646 (0.534-0.704)	0.648 (0.598-0.722)
6 h	Combo 2	24	0.684 (0.571-0.833)	0.613 (0.474-0.744)
6 h	Combo 1	42	0.618 (0.494-0.846)	0.526 (0.385-0.617)
72 h	Combo All	130	0.790 (0.690 - 0.835)	0.729 (0.642 - 0.775)
72 h	Combo 5	1	0.641 (0.523 - 0.772)	0.615 (0.513 - 0.726)
72 h	Combo 4	17	0.749 (0.652 - 0.823)	0.664 (0.533 - 0.753)

72 h	Combo 3	21	0.715 (0.699 - 0.747)	0.660 (0.558 - 0.710)
72 h	Combo 2	23	0.713 (0.644 - 0.767)	0.602 (0.524 - 0.710)
72 h	Combo 1	68	0.570 (0.529 - 0.620)	0.631 (0.551 - 0.692)

Table 38: 266 Liver Toxicity Predictive Genes Organized by Time Point and Combo Class

Gene	6h	24h	72h
{Ribosomal protein L6}	Not Found	Combo 1	Combo 1
14-3-3 zeta	Combo 2	Combo 3	Combo 2
17-beta hydroxysteroid dehydrogenase, type 2	Combo 1	Combo 2	Not Found
25-DX	Not Found	Combo 1	Not Found
3-beta-hydroxysteroid dehydrogenase (HSD3B1)	Combo 1	Not Found	Not Found
3-hydroxyisobutyrate dehydrogenase	Not Found	Combo 2	Not Found
60S ribosomal protein L6	Not Found	Combo 2	Combo 4
8-oxoguanine DNA glycosylase	Combo 1	Not Found	Not Found
Acetyl-CoA carboxylase	Combo 2	Not Found	Not Found
Activating transcription factor 3	Combo 2	Not Found	Not Found
Adenine nucleotide translocator 1	Not Found	Not Found	Combo 2
Aflatoxin B1 aldehyde reductase	Not Found	Combo 1	Not Found
Alcohol dehydrogenase 1	Combo 1	Not Found	Not Found
Aldehyde dehydrogenase 2	Not Found	Not Found	Combo 1
Aldehyde dehydrogenase, microsomal	Not Found	Combo 1	Not Found
Alpha 1 - inhibitor III	Not Found	Combo 2	Not Found
Alpha-1 microglobulin/bikunin precursor (Ambp)	Not Found	Not Found	Combo 1
Alpha-2-macroglobulin	Not Found	Combo 1	Not Found
Alpha-2-macroglobulin, sequence 2	Combo 4	Not Found	Combo 2
Alpha-2-microglobulin	Not Found	Not Found	Combo 3
Alpha-prothymosin	Not Found	Not Found	Combo 1
Alpha-tubulin	Not Found	Not Found	Combo 3
Annexin V	Not Found	Not Found	Combo 2
Apolipoprotein AII	Not Found	Not Found	Combo 1
Apolipoprotein C1	Not Found	Not Found	Combo 1
Apolipoprotein CIII	Not Found	Combo 1	Combo 1
Argininosuccinate lyase	Combo 5	Combo 1	Not Found
Arginosuccinate synthetase 1	Not Found	Not Found	Combo 1
ATPase inhibitor (rat mitochondrial IF1 protein)	Not Found	Combo 1	Combo 1
Bax (alpha)	Not Found	Combo 2	Not Found
Beta-actin	Not Found	Combo 2	Combo 2
Beta-actin, sequence 2	Not Found	Not Found	Combo 2
Betaine homocysteine methyltransferase (BHMT)	Not Found	Not Found	Combo 1
Beta-tubulin, class I	Not Found	Combo 1	Combo 2
Biliverdin reductase	Not Found	Not Found	Combo 3
C4b-binding protein	Combo 2	Not Found	Not Found
Calpactin I heavy chain	Not Found	Combo 1	Combo 5
Calpain 2	Not Found	Not Found	Combo 2
Carbamyl phosphate synthetase I	Not Found	Combo 1	Not Found

Carbonic anhydrase III	Combo 2	Combo 2	Not Found
Carbonyl reductase	Not Found	Combo 1	Not Found
Carnitine palmitoyl-CoA transferase	Combo 1	Not Found	Not Found
Caspase 6	Combo 1	Not Found	Not Found
Cathepsin B	Not Found	Not Found	Combo 1
Cathepsin L, sequence 2	Combo 5	Combo 4	Not Found
Cathepsin S	Not Found	Not Found	Combo 1
Cholesterol 7-alpha-hydroxylase (P450 VII)	Combo 2	Not Found	Not Found
Cholesterol esterase	Not Found	Not Found	Combo 1
Choline kinase	Combo 1	Not Found	Not Found
c-H-ras	Not Found	Combo 1	Not Found
c-jun	Combo 4	Combo 1	Not Found
c-myc	Combo 5	Combo 2	Not Found
Cofilin	Not Found	Combo 1	Combo 3
Collagen type II	Not Found	Not Found	Combo 4
Connexin-32	Not Found	Not Found	Combo 1
Contrapsin-like protease inhibitor (CPI-21)	Not Found	Not Found	Combo 1
C-reactive protein	Not Found	Not Found	Combo 1
Cyclin D1	Not Found	Not Found	Combo 2
Cyclin D3	Combo 1	Not Found	Not Found
Cyclin dependent kinase 4	Combo 3	Not Found	Not Found
Cyclin G	Not Found	Combo 1	Combo 1
Cystatin C	Not Found	Not Found	Combo 2
Cytochrome P450 1A1	Combo 2	Not Found	Not Found
Cytochrome P450 2C11	Not Found	Not Found	Combo 2
Cytochrome P450 2C23	Not Found	Not Found	Combo 1
Cytochrome P450 2D18	Not Found	Not Found	Combo 1
Cytochrome P450 2E1	Combo 1	Not Found	Not Found
DNA polymerase beta	Not Found	Combo 1	Not Found
DNA topoisomerase I	Combo 2	Not Found	Not Found
Dynammin-1 (D100)	Not Found	Combo 3	Combo 1
Elongation factor-1 alpha	Combo 1	Combo 1	Not Found
Endogenous retroviral sequence, 5' and 3' LTR	Not Found	Combo 1	Not Found
Enolase alpha	Not Found	Combo 1	Not Found
Epidermal growth factor	Not Found	Combo 2	Not Found
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	Not Found	Combo 2	Combo 1
Extracellular-signal-regulated kinase 1	Not Found	Combo 1	Not Found
Fas antigen	Not Found	Combo 1	Not Found
Fatty acid synthase	Not Found	Not Found	Combo 1
Ferritin H-chain	Combo 2	Not Found	Not Found
Focal adhesion kinase (pp125FAK)	Combo 3	Not Found	Not Found
Gadd153	Combo 5	Combo 1	Not Found
Gadd45	Combo 5	Combo 4	Not Found
Gamma-actin, cytoplasmic	Not Found	Combo 5	Combo 4
Gap junction membrane channel protein beta 1 (Gjb1)	Not Found	Not Found	Combo 1
Glucokinase	Combo 3	Not Found	Not Found

Glucose-regulated protein 78	Not Found	Combo 1	Not Found
Glutathione S-transferase theta-1	Not Found	Not Found	Combo 2
Glycine methyltransferase	Not Found	Not Found	Combo 4
Heme oxygenase	Combo 5	Combo 2	Combo 3
Hepatic lipase	Not Found	Combo 2	Not Found
High affinity IgE receptor gamma chain (FcERlgamma)	Not Found	Not Found	Combo 4
H-rev107	Combo 1	Not Found	Not Found
Hypoxanthine-guanine phosphoribosyltransferase	Not Found	Not Found	Combo 1
ID-1	Combo 2	Combo 2	Not Found
IgE binding protein	Not Found	Combo 1	Combo 4
IkB-a	Not Found	Combo 1	Not Found
Insulin-like growth factor binding protein 1	Combo 5	Combo 3	Not Found
Insulin-like growth factor binding protein 3	Not Found	Combo 2	Not Found
Insulin-like growth factor binding protein 5	Combo 1	Not Found	Not Found
Insulin-like growth factor I	Not Found	Combo 1	Combo 1
Insulin-like growth factor I, exon 6	Not Found	Not Found	Combo 2
Integrin beta1	Combo 3	Combo 2	Not Found
Interferon related developmental regulator IFRD1 (PC4)	Combo 3	Not Found	Not Found
Interleukin-18	Not Found	Not Found	Combo 1
Iron-responsive element-binding protein	Combo 2	Not Found	Not Found
JNK1 stress activated protein kinase	Not Found	Not Found	Combo 1
Lecithin:cholesterol acyltransferase	Not Found	Not Found	Combo 1
L-gulono-gamma-lactone oxidase	Not Found	Combo 3	Combo 1
Liver fatty acid binding protein	Not Found	Combo 1	Not Found
Macrophage inflammatory protein-1 alpha	Combo 2	Combo 1	Not Found
Macrophage inflammatory protein-2 alpha	Not Found	Combo 1	Not Found
MAP kinase kinase	Not Found	Combo 1	Not Found
Matrin F/G	Not Found	Combo 5	Combo 1
Matrix metalloproteinase-1	Combo 1	Combo 1	Not Found
Melanoma-associated antigen ME491	Combo 1	Combo 1	Combo 3
MHC class I antigen RT1.A1(f) alpha-chain	Combo 1	Not Found	Not Found
Monocyte chemotactic protein receptor (CCR2)	Not Found	Combo 1	Not Found
Multidrug resistant protein-1	Not Found	Combo 1	Combo 2
Multidrug resistant protein-2	Not Found	Combo 1	Combo 3
NADH-cytochrome b5 reductase	Not Found	Not Found	Combo 1
NADPH quinone oxidoreductase-1 (DT-diaphorase)	Not Found	Combo 1	Not Found
Neuropeptide Y	Combo 1	Not Found	Not Found
NGF-inducible anti-proliferative putative secreted protein (PC3)	Combo 3	Not Found	Not Found
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	Not Found	Combo 2	Combo 1
NIPK	Combo 5	Not Found	Not Found
Nucleoside diphosphate kinase beta isoform	Not Found	Combo 1	Combo 2
Nucleosome assembly protein	Combo 2	Not Found	Not Found
Organic anion transporter 3	Not Found	Combo 2	Not Found
Organic cation transporter 3	Not Found	Not Found	Combo 2
Ornithine decarboxylase	Not Found	Combo 3	Not Found
Osteoactivin	Not Found	Not Found	Combo 5

p53
 p55CDC
 PAR interacting protein
 Paraoxonase 1
 Peroxisomal multifunctional enzyme type II
 Phase-1 RCT-252
 Phase-1 RCT-102
 Phase-1 RCT-107
 Phase-1 RCT-109
 Phase-1 RCT-110
 Phase-1 RCT-116
 Phase-1 RCT-117
 Phase-1 RCT-12
 Phase-1 RCT-121
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Phase-1 RCT-207
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Phase-1 RCT-65	Combo 2	Combo 1	Not Found
Phase-1 RCT-66	Combo 1	Not Found	Not Found
Phase-1 RCT-68	Not Found	Combo 3	Combo 3
Phase-1 RCT-70	Combo 1	Not Found	Not Found
Phase-1 RCT-71	Combo 2	Not Found	Not Found
Phase-1 RCT-72	Combo 3	Combo 1	Not Found
Phase-1 RCT-73	Combo 1	Not Found	Not Found
Phase-1 RCT-75	Combo 3	Not Found	Not Found
Phase-1 RCT-78	Not Found	Combo 5	Combo 2
Phase-1 RCT-81	Not Found	Not Found	Combo 2
Phase-1 RCT-82	Combo 4	Not Found	Not Found
Phase-1 RCT-83	Not Found	Combo 2	Not Found
Phase-1 RCT-87	Combo 1	Not Found	Not Found
Phase-1 RCT-88	Not Found	Combo 1	Not Found
Phase-1 RCT-89	Not Found	Combo 3	Not Found
Phase-1 RCT-92	Not Found	Combo 4	Not Found
Preproalbumin	Combo 1	Not Found	Not Found
Proliferating cell nuclear antigen gene	Combo 3	Combo 1	Combo 1
Protein kinase C alpha	Combo 1	Not Found	Not Found
Protein tyrosine phosphatase, receptor type, D	Not Found	Not Found	Combo 1
PTEN/MMAC1	Not Found	Not Found	Combo 1
Pyruvate kinase, muscle	Combo 4	Combo 1	Combo 1
Ref-1	Not Found	Combo 1	Not Found
Retinol dehydrogenase type III	Not Found	Not Found	Combo 1
Ribosomal protein L13A	Combo 1	Combo 1	Not Found
Ribosomal protein S17	Not Found	Combo 2	Not Found
Ribosomal protein S8	Not Found	Combo 1	Combo 1
Ribosomal protein S9	Not Found	Combo 1	Combo 3
Sarcoplasmic reticulum calcium ATPase	Combo 3	Not Found	Not Found
Selenoprotein P	Combo 1	Not Found	Not Found
Senescence marker protein-30	Combo 3	Combo 2	Not Found
Sodium/bile acid cotransporter	Not Found	Combo 1	Not Found
Stathmin	Not Found	Not Found	Combo 4
Stearyl-CoA desaturase, liver	Not Found	Not Found	Combo 1
Superoxide dismutase Mn	Not Found	Combo 1	Not Found
T-cell cyclophilin	Not Found	Combo 1	Not Found
Thymidylate synthase	Not Found	Not Found	Combo 1
Thymosin beta-10	Not Found	Combo 1	Combo 4
Transthyretin	Not Found	Combo 1	Not Found
Tryptophan hydroxylase	Combo 1	Not Found	Not Found
Ubiquitin conjugating enzyme (RAD 6 homologue)	Not Found	Combo 1	Combo 1
Uncoupling protein 2	Not Found	Combo 1	Combo 4
Zinc finger protein	Combo 4	Combo 4	Combo 1

**Table 39 9 Liver Predictive Genes that are Predictive Across all
Three Time Points**

Gene	6h	24h	72h
14-3-3 zeta	Combo 2	Combo 3	Combo 2
Heme oxygenase	Combo 5	Combo 2	Combo 3
Melanoma-associated antigen ME491	Combo 1	Combo 1	Combo 3
Phase-1 RCT-109	Combo 1	Combo 1	Combo 1
Phase-1 RCT-144	Combo 1	Combo 4	Combo 2
Phase-1 RCT-179	Combo 2	Combo 2	Combo 4
Phase-1 RCT-207	Combo 5	Combo 3	Combo 2
Pyruvate kinase, muscle	Combo 4	Combo 1	Combo 1
Zinc finger protein	Combo 4	Combo 4	Combo 1

**Table 40 Liver Predictive Genes that are
Most Predictive Across all Three Time
Points**

Heme oxygenase	Combo 5	Combo 2	Combo 3
Phase-1 RCT- 207	Combo 5	Combo 3	Combo 2
Zinc finger protein	Combo 4	Combo 4	Combo 1

Table 32. Genes predictive for liver necrosis, sequences, and accession numbers			
Phase-1 Gene Name	Accession Number	Sequence	
14-3-3 zeta	D17615	TGNGAATGGGCGCTAGATGCATGCTCGAGCGGCGCCAGTGTGATGGATACTGCAGAAATCGCCCTTCGGC GGATCCAAAGCAGCAGATGGCTCGAATAACAGAGAGATCGAGCGGATCGAGGACATCTGCAACGACG TACTGTCTCTTTGGAAAGTTCTTGATCCCAATGCTTCGAGCCAGAAAGCAAGTCTTCTATTTGAAATGAAGGG TGACTACTACCGTACTTGGCTGAGTTGCTGCTGGTGTGATGACAGAAAGAAATTTGGACACACAGCAAGCAT ACCAAGAAGCATTTGAAATCAGCAAAAGGAGATGCGCCGACACACCCCATCAGACTGGGTCTGCCCTCAACTTC TCTGTGTTCTACTATGAGATCCTGAACCTCCCGAGAGAAAGCTCTCTCTTCGAAACAGCGTTTGTGAAGCAATT GCTGAACCTTGATACATTAAAGTGAAGATGCTGACAAAGACAGCAGCTAATAATGAGTTACTGAGAGCAACTTGACA TTGTGGACATCGGATACCCAAAGGAGACAGCAAAAGCTTGGCCAAAGGGCGAATTCAGGACACTGGCGGGCC GNACTAGTGGATGCGAGCTGNGTACCCAGCTTTGATGCATA TGCGATTGGGCGCTCTAGATGCATGCTCGAGCGGCGCGCATGTGATGGATATCTGCAGAAATTCGCCCTTACACACA CAGTGGCCCCAATGGTCAATGTAAGTAAGATGAAGAGAGAAAGTCTTAGCCATGCTAGTCTGAAACAAAGCCCCA TTTTACCCCAACAGACTTAACCTGCATGATTTTGTATCTACCTCTAAAGCAAACTCGAGTGTTCGAAAGTCTGTGGT ATTGATTCAAACACAGAGTCCAGTAACAAATGAAACTCAATATGGGTTTAGTTGGGSCAAACACATTGCGCTGTGT CATGGACTGATTTATCATCCCTGTCGCCAGTGGACACTCCACACACAGTAACCTCTCACACACCTGGTAATTGGCAG TTGGAACCTACACAGAACTGAAATTCGAAGGTAGAACTTTGCAAGAAAGAAATCTGTTGCTGATGACAGGGCAATGG TTATGTGTTATGGCCAAATGTAATTTGAGAGCAATATACAGGACAGCAAGGTGCGCTAAGGGCGCAATTC CAGCACACTGGCGGCGTTTACTAGTGGATCCGAGCTCGGTACCAAGCTTGTGATGCTAGCTTGTAGTATTCATAGTGG CACCTAAATAGCTTGGCGTAATCATGNCATAGCTGTTTCTGTGTGAAATTTGGTATCCGCTCACAATTCACACAA CATCCGAGCGCGAAAGCAATTAAGTGT NGCAAGCTAAATTAACCTCACTAAAGGGAATAAGCTNGCGNCGCCGCAANGTATTTTNTATANTTTTNNNTT AAAGCCATTACAAATTTATGCTTTATAATCAATGAGATATAACCAAGCAGGATGTGATTTAGGACTTGAAAGGA ACAGAAAGTAATACTCAGCTTAAGTGACAGGAAATTTGCTATTGCTGAAGCTTTGGTCACAGCAGCTGAGGCAAA CTACCTGTGTCTCTGGACAGGGGATTAGGSAAGAAAGCTTTGSGACTAGCAAGSCTCCAGTGAAGTCAATAAGA CATAGAGTTAGAGTCTGTGTCAAAAGAGGGCATCAGGACCTGGATTGTGCTCTGTAGCTGAGGAGGACCTGGTAA CACCCAGAACCACTCTGCCCCCTTTCTGTCACTGAGACTTTGTCCAGTGTCTCCCTGTGCTGCTCCACTAGTG TCCCGATCCACTCCGAGGTTTCTGCTTGGCTTCCCTCCAGCTGACAAGTGGACATAGCCCAAGATCTCTCTGAGCTT TCTTTGAGGAGAAAGTGAACCTTGTATTGACAGTGTGACCAAGTGGCGATTAAGGGTGGCCCTATAGTTGTAAATC CTCGTGCGGAATCTTGGCCTCGAGGCGCAATTCCTATAGTAGTAGTATTAAATTCGTAATCATGTATAGAG	
25-DX	U63315	CCNNNCTATGACATGATTACGAATTTACTAGAGCTCACTATAGGGAATTTGGCCCTCGAGGCCAAGAAATTCGGCAC GAGGAGCGACATTACAACCTGTACTCTGGGTTATGGATGGAGTCCCTCATCTAATAACTACCAAGGTGGATTG GGACAACATCTATGGCCAGGATCTGGGATTAGCTCAAGACTCTGCCACCAAGCACCAGCCCAATTCCTCTCGGA AGCGTGGCCCATCAGATACAGGATGATGTGTCAAGGSCCTACTCAAGAAAGAACTTCTCCTCTGTGTTCCAGTAT CTGCGGAGGAGGAAACCTTCTGACTGCCCTGTGGTGTGATGAGACTGTGAGAACCAACTCTGCTGAGCTTCCCT TCTAGCTCATCTAGAGTGGTTTAAACAAAGGTCTGCTGCTTTTGTGTTGTCTACATTTATAGCAATCCCTG GGGATTTTATCCATTTAAATGCTGCTGCTTCACTGTGTAGCAACACACCCCAATGGTTCCACTGAGTGGCCAG TTGACCTTTTAAAGTTTGAACCTTGAGCAGCTTAAACAAATTTGAGCACTCTGATCAGGATTTATTTTACTCTGCT TTACNAATAAACCAATGGTTTGTAAACAGATGGAACCATGGTAAAAAGGAAAAAATCAGTNN	
3-beta-hydroxysteroid dehydrogenase (HSD3B1)	AA923963	CCNNNCTATGACATGATTACGAATTTACTAGAGCTCACTATAGGGAATTTGGCCCTCGAGGCCAAGAAATTCGGCAC GAGGAGCGACATTACAACCTGTACTCTGGGTTATGGATGGAGTCCCTCATCTAATAACTACCAAGGTGGATTG GGACAACATCTATGGCCAGGATCTGGGATTAGCTCAAGACTCTGCCACCAAGCACCAGCCCAATTCCTCTCGGA AGCGTGGCCCATCAGATACAGGATGATGTGTCAAGGSCCTACTCAAGAAAGAACTTCTCCTCTGTGTTCCAGTAT CTGCGGAGGAGGAAACCTTCTGACTGCCCTGTGGTGTGATGAGACTGTGAGAACCAACTCTGCTGAGCTTCCCT TCTAGCTCATCTAGAGTGGTTTAAACAAAGGTCTGCTGCTTTTGTGTTGTCTACATTTATAGCAATCCCTG GGGATTTTATCCATTTAAATGCTGCTGCTTCACTGTGTAGCAACACACCCCAATGGTTCCACTGAGTGGCCAG TTGACCTTTTAAAGTTTGAACCTTGAGCAGCTTAAACAAATTTGAGCACTCTGATCAGGATTTATTTTACTCTGCT TTACNAATAAACCAATGGTTTGTAAACAGATGGAACCATGGTAAAAAGGAAAAAATCAGTNN	
3-hydroxyisobutyrate dehydrogenase	J04628	CCNNNCTATGACATGATTACGAATTTACTAGAGCTCACTATAGGGAATTTGGCCCTCGAGGCCAAGAAATTCGGCAC GAGGAGCGACATTACAACCTGTACTCTGGGTTATGGATGGAGTCCCTCATCTAATAACTACCAAGGTGGATTG GGACAACATCTATGGCCAGGATCTGGGATTAGCTCAAGACTCTGCCACCAAGCACCAGCCCAATTCCTCTCGGA AGCGTGGCCCATCAGATACAGGATGATGTGTCAAGGSCCTACTCAAGAAAGAACTTCTCCTCTGTGTTCCAGTAT CTGCGGAGGAGGAAACCTTCTGACTGCCCTGTGGTGTGATGAGACTGTGAGAACCAACTCTGCTGAGCTTCCCT TCTAGCTCATCTAGAGTGGTTTAAACAAAGGTCTGCTGCTTTTGTGTTGTCTACATTTATAGCAATCCCTG GGGATTTTATCCATTTAAATGCTGCTGCTTCACTGTGTAGCAACACACCCCAATGGTTCCACTGAGTGGCCAG TTGACCTTTTAAAGTTTGAACCTTGAGCAGCTTAAACAAATTTGAGCACTCTGATCAGGATTTATTTTACTCTGCT TTACNAATAAACCAATGGTTTGTAAACAGATGGAACCATGGTAAAAAGGAAAAAATCAGTNN	

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Cholesterol 7- α -hydroxylase (P450 VII)	J05509	<p>GAAATTGNGCCCTCTAGATGCATGCTCGAGCGGGCGCCAGTGTGATGGATATCTGCAGAAATGCGCCCTTATAGCTG GGCCAGAGCTTCATCACTTTCAGAAAGCAATGCTCTTTGATTTATTTCAAAATGAAGATATCCAAATGGCAGGAT AATTTCTTAAGAAATGCTTTATATTTTATGAACATCACTCAATTAATATGAAGGGCTGAAATTCACGTTTAGTG AAATCTAGTATTTTCACTAGTAAGTTCTCAGGTGTGAAGCTGTATATAAAATGTTAAGGGTCAACATGCTGCT TTGCATAAGGTAAGAAACTATGTTTCAGCTTTCTGTCGTATGAGCTTCGAAATATCTACTGTCTAGAAA CACTGGGAGGCTTCACATGCTCTGCTATATTTATTTACTGGTGCTAGAAATTTTCAATTCAGTTTCAACTACCT TATCTTTCCCCATTTTGACATGCATGCCAATGAGAGGATTTTATAGAAATTAACAAGGCACTCCAGAACCCCTA CCCTGAGACTAAGGCGAAATCCAGCACACTGGCGGCTACTAGTGCCGAGCTCGGAGCTGACCAAGCTTGATGCA TAGCTTGAGTATCTATAGTGTCCCTAAATAGCTTTGGCGTAATAGGCGATAGCTGNTTCTGTGAAATGNTATC CGTCAAC</p>
Cholesterol esterase	L46791	<p>AATCAAGCTATGCATCAAGTGTGCTCGAGTTCGATCCACTAGAACGGCCGCGAGTGTGNGAATTCGCCCT TCGCGGATCTTGAAGTCTTCCCAACACTGAAATCTCTGAGAAATGAATCCAGTGTGCTGAGAACTATCTG GAGGACAGATGACCTGCCAAAGGAAAGACTGTTCCAGGACTTGTTCAGATGTATATTTGGTGTCCCATCA GTGATGGTGTCTCGAAGCCACAGATGCTGGAGCCGCCACTTCTGATGTAAATTTGAGTATCGCCCAAGCTTTGT ATCAGCATGAGGCCCAAGCAGTGTGAGACCATGGTGAATCTCTCAGTATTTGGATCTCCCAATTTTAA AGATGGTCTCAGAAAGAGAACCAATCTCAGCAAAATGGTGATGAATATCGGCCCACTTTGCTCGGAATGGGA GCCCTAATGGGGGAGGCTGCCCATTTGCCAGAAATAGCAGAAAGGAGTACCTGAAGATTTGGTGCCTCAAC TCAGGACCCAGAGGCTGAAGCAAAAGTGGCTTTTGGTCTGAGCTCACTGCAGGGCCCAAGGGCGAATCT GCAGATATCCATCACACTGGCGGCTCGAGCATGCTATGAGGGCCCAATCT</p>
Choline kinase	D10262	<p>GCGAATGGGCCCTCTAGATGCATGCTCGAGCGGCCGCGAGTGTGATGGATCTGCAGAAATCGCCCTTCTCGAG CTTGAACTGAGGCTATTTGCTGAGTATCTAGATCCCAAGTGTGTTTGTCTAATGACTGTCAAGAGGTAAAT ATCTTATTTGGAAGGCCAAGAAATTTCTGAAAGCAGAGTTGATGCTTCACTTTGAATACAGCAGTTACAAT ACAGGGATTTGACATTTGGAATCAATTTCTGTAATGGATGTATTAACCTATGAAGATCTCTTCTTCAGAGC AAACATTCAGAAAGTATCTCCCAACCAAGCTCCATTTTCAAGTCTGACTACATCCAAATGATTTTGT AAAGCTCAGCAGTGAAGAGCAGTCTGTACAAAGAACAGATGTTGCTGAAGTCAACAGATTTGCCCTTGCCTCTC ATTCTCTGGGACTTTGGTCCATTTGACAGGCCAAGATCTCATCCATTTGATTTGGGTACATGGAATATGCCCAAG CCAGTTTCAGTCTACTTTGACAAGGGCAATTCAGCACACTGGCGGCTTACTAGTCCGAGCTCGGTA CCAAGCTTGATGCATAGCTTGAGTATCTATAGGNCACCTAAATAGCTTGGCGTAATCATGGNCATAGCTGN</p>
c-H-ras	M13011	<p>CCCTAGATGCATGCTCGAGCGGCCGCGAGTGTGATGGATATCTGCAGAAATCGCCCTTATCCAGCTGATCCAGAAC CATTTTGTGACGAGTATGATCCCACTATAGAGGACTCTACCGGAAACAGGTAGTCAATTTGATGGGAGAGCTGTTT ACTGGACATCTTAGACACAGCAGGTCAAGAGAGTATAGTGCATCGGGGACAGTACATGCGCACAGGGGAGGCG TTCTCTGTGATTTGCCATCAACACACCAAGTCTTTGAAGACATCCATCAGTACAGGGAGCAGATCAAGCGGGTG AAAGATTCAGATGATGCGCAATGGTGTGGTGGGCAACAAGTGTGACTGGCGCTCGCACTGTTGAGTCTCGGC AGGCCAGGACCTTGCCGCACTATGCGCATCCCTACATTTGAACACATCAGCCAAAGCCCGGAGGTTGGAGGA TGCTTCTACACACTAGTACGTAGATTCGGCAGCATAACTCGGGAACATGAACCCGCTGATGAGAGTGGCCCTG GCTGCATGAGCTGCAAGTGTGCTGTAAAGGGCGAATTCAGCACACTGGCGGCTTACTAGTGGATCCGAGCTC GGTACCAAGCTTGATGCATAGCTTGAGTATCTATAGTGTACCTAATAGCTTGGCGT</p>
c-Jun	X17163	<p>GCGAATGGGCCCTCTAGATGCATGCTCGAGCGGCCGCGAGTGTGATGGATATCTGCAGAAATCGCCCTTATCGCG GGATCTGTTCTCCAGTCCGAGTGGCGCTACGGCTCAGTAACCTTAAGATTCGAAAGCAGATGACCTT GACCTTGGCCGAGCGGTGGCAATCTGAAGCGCACTCCGAGCAGAGCTTCTACGTCGCGCGGA CGTCGGGCTGCTCAAGCTGGCTCGCGGAGTGGAGGCTGATCATCCAGTCCAGCAATGGGCAATCAACACT ACACGACCCCACTCAGTCTTGTGCCCAAGAGCTGACGACGAGGCTTCCGCGAGGCTTCTGTC GGCCCTAGCTGAAGCTGATAGCCAGAAATACGCTGCCCAAGTGTACCTCCCGGCGCACACCTGTCACTGGGGCGG GCATGGTCTCCGCTGTGGCTCAGTAGCTGGCGTGGCGGCGGCTACAGCGCCAGCTGACAGT GAGCTCCGGTCTAGCCCAACCTCAGCAAGCTTGGCCAAAGGGCGAATTCAGCACACTGGCGGCGGCTTACTAGT GATCCGAGCTCGGTACCAAACTTGATGCATAGCTTGAGTATCTATAGTGTCACTAA</p>

c-myc	X01023	NTNCNANGGCCGCTNTANAAGCTGCTGGAGCGCGCCGACGTGTGATGCGAATCTGCGAATTCGCCCTTCGGCGG ATCTGGAGAGGAGCAACCCCTGCCAAGAGGTCGCGAGTCAGGTCATCCCATCAAGAGCCACAGCAAACTCTC CACACAGCCCACTGCTCAAGAGTGGCATGTCTACTCCAGACCAATATGACGACCCCCCTCCACAAAGG AAGGACTATCCGGCTGCCAGGAGGCGCAAGTGTGACAGTGGCGGCTGTGAACAGCATGACCAACACCGCAAT GCTCCAGCCGAGGCTCCAGACACCGAGAAACAGACAGGCGGACACACACAGCTGTGGAACCTCAGAGGA GAACGAGCTGAAGCGTAGCTTTTTCCTCTCGGACGAGATCTGAGTGTGAAACACACGAAAGGCCCCCAA GGTAGTTATCTCAAAAAGCCACCGCTACATCTGTCGTTCAAGCAGTACGACGACCAATCTCAGAAAAGGA CTTAGAGAAACGACGAAACAGTTGAACACAAAGCTTGCCCAAGGCGAATTCACGACACTGCGCGGCGG GTACTAGTGGATCCGAGCTCGGTCCAACTTGATGATCATTAGCTTTATAGTGTGACCACTAAATAGCTTGGGG TA TATGACATGATTACGAATTAATACGACTCACATATAGGGAATTTGGCCCTCGAGGCGCAAGAAATTCGGCAGGAGCGGG ATCCCGCAGCAGCTGGCGGCTGTCTTCTGTAGCTCTTTCTGTCTCCCTTCTGTCCGAAACATGCGGCTC TGGTGTGGCTGTCTGATGGAGCATCAAGGTTGTCATGACATGAAGTTCGCAAGTCTTCACGACCACGAAGAAG TGAAGAAACGCAAGGAGCTGCTTTTGCTGAGTGAGGACAAAGAACTCCCTCCACCCCTCGGACCGCT CCTTTTCCTCCATCCCTGACGGTTTGGCCCTTCCAACTGCTTTGATCTTCTGATCTCTTGGTGAAGCAGAG CAAGTCCGCTTAGCAGCCAGTTGGGGGAGCTGTATTTTTTTTTTAAACACACCCCTACTCTCATCTGTC CCATCCATGCTGCCAATCTCAACCAATAGTACTGTGCTGTGTTAGTCTGTGTTGTAATGAATGTG GAAATGACCTCCCTGCACGAGCTGGTCCCTCCCTTTCTGATCTTGGCCTCATGGAACAGGACCCAGTA ANGGACCTTCAATTAATAAAAAAAAAAAAAAAAAAAAAATTTGGCGCGCNAAGCTTATTCCTTTANNGANGGGTAAT TTAAGTGGGCTGGGCGC TTGCAATTTGGCCCTAGATGCTGCTCGAGCGGCGCCAGTGTGATGATATCTGCAAGATTCGCCCTTATCGGG GATCCGGAGCAGCAAGAGAGGAGCAACATCTGTTTGGAGAGCAGCATCAAGCGGCTTCTCCACTGATTCAGC TACGGCGAGCGCAACCTGGCTCCCAACACCGTTACGTCAGATGACTTCTCCGCTACTGTCACACTGAGGGCTC CCAGAACATCACTACCTGTAAGAACAGCATTTGCTTACCTGAGGAGCAAGCGGACCTCAAGAGGCTTGC TCATCAGGCTCCATGATGTGAGATGAGGCGGAGCAACAGCAGGTTACGTCACATGCTCCCTGAAGGATGG CTGCAGCAACACACCGGTAAGTGGGCAAGACCATCATCGATACCGATCAAGAACCTCAGGCTTCCCATTTG TTGACATTCACCCATGGACATCGGAGGCGCTGATCGGAAATTTGGTGTGACATAGGCGCTGTCTGTCTTTGTAA AACCTCAACCCCAACAAAGCTTGCCCAAGGCGAATTCACGACACTGCGCGCTTACTAGTGTGATGC GAGCTCGGTACCAAGCTTGATGATAGCTTGAATATCTATAGTGTACCACTAAATAGCTTGGCGTAAT
Collagen type II	L4840	TGCGAATTTGGCCCTTAGATGATGCTCGAGCGGCGCCAGTGTGATGATATCTGCAAGATTCGCCCTTCAGGCGCT CTGCCTCTAGGGATTACTCCATCAACCTTCCCTCCCTACTCCCTTCTCAGAGAGTCTTCTGTCAAGACCC TGCGGCTTGGAGTGGGAGCCACTCTGCACAGGCTCAAGGTTATGAGGCTTGGGCAATTTCTTGCCT ATACCTTTCTCTTCCCTCCCTGAGATGAGGATGAGATGTTCTGAAGGTTTCCATTTAGGAACCTAATCTTAA CCCCATGCTGTAGGTAACCCACTTTGGAGTCAATGTAAGTGGGAGGCTGTGAGCAAGCAGATGAGGAG GGGCTCTGCATGTTGATGAGAAAGGAGGAGGCTTGCCTTGTCTGCTGTCAAGAAAGANGACACATCTA NGGTGSGGGAAGTCTTGGAGGGAACAGGCGAATAAAATGGGGGTGNNCAAGGCTTSCCCCCCATCC CCCCCAANNTTCCCCCAAAAGGGGCCCCCTTTTTTTTTTTTTTTTGGAAAAAATGGGTTNAAAGGGGCGGAAA ATTCTN
Connexin-32	X04070	TGACATGATTACGAATTAATACGACTACTATAGGGAATTTGGCCCTCGAGGCGCAAGAAATTCGGCAGGCGCAGAC TACAACCTGGAGGAGGCTCTCCAGAGCTGGGAATAGGAAATCTTCTCCCAAGCAAGCTGATCTGAGTAGATCAAC AGGACCAAGAACCTGCATGTCTCAGGTGTCACAAAGGCTGTCTGATGTGGATGAGACAGGCAACAGCAAGGA GCCTGCGCCACAGCAGTCAACAGCCCTAAAAGTTTACCGCAACTATACCTTCTTGAATTTACCGCGCCATTC ATGCTGTTATCACTGACAATAATGGTCACTGTCTTTTATGGGCAAGTCACTAACCCCATGTGAGTCTGAAAGC TCCCCAAATCTGACAAATTCGCCAGGATCCTGGAACAGAGCTGTGATCTGTATATGCTTATGCTGACATACA TGCTCTGATTGGCTATTGCAAGTTGGCTTAGACAGTACATCAATCTATCTATGCTGCTCCCATGTGAGGAGCT TTGGATTGCAAGTGTCAAGCACTTANGACCTTGGGAGCTATACACATGTTTCTGAACTTGGAACTCTTCTTTATTC TTCTTNGCTGGTACTCCTCTTCTGTGTTTCATACCCCAACCAAG
Contrapsin-like protease inhibitor (CP-21)	D00751	

[illegible]

Cystatin C	X16957	TATGACATGATTACGAATTTAATACGACTCACTATAGGAAATTTGGCCCTCGAGGCCAAGAAATTCGGACACGAGGGCG GAACCATGGCCAGCGCTCGCTCTTGTGATGCTACTGTGGCTCGCTGGCCGTCTGGCCGTGGCGGAGAACCTCTCA GGCCACCCCGCGATTTGGGAGCTCCGAGGAGGAGATGCCAGGAGGCGCTGCAGCGAGCTGTGGAC TTGGCTTAAGCGAGTACAAAGCGGCAAGATCGCTACAGCGCGGACGCTACAGGCTGTGGAGAGCTCGTA AGCAGCTTGTGGCTGGAATAACTATTATTGGATGTGGAGTGGCGGCAACTACATGTTCCAGATCCGACAAAT TGACTAACTGCTCTTCCACGACCGCCCATCTGATGAGAAAGGCACTGCTCTCCAGATCTACAGCGTGCCT TGGAAAGGCACACACACCTGACAAATCCAGCTCAAAATCCAGCTGAAATCCAGCTGAGTCTCATAGACCAATGCCAAAT GTCCCTTACTGTTTCCCTACCTGTAGTGTATTATCCCTGAAAGGGGTCTCCAGCTCGAGGGCACTCTCNCGGGG TGTTCCACGAGGACAGATGAAGAACTGCTGACGGCAGGTCTGACAGCTCAGAACAGCTGTCCCCCTGTCTCTCT CTCTTGACGTAN	X00469 U33173 X55446	TCTGGTCTCAGCATCTCCAGGCTTAGACTGCTCTGGATGCTCACCGAC ACTCTTAAGCTCTCATCTGTAATGCTCTCTGAGGGTCCGTGCTACTT TATGACATGATTAGGAATTTAATACGACTCACTATAGGAAATTTGGCCCTCGAGGCCAAGAAATTCGGACACGAGGGCC AAAGTTTATGAGGAATTTGACCGTGTGATTTGACGCCACCAACCCCGACGATGAAGACAAAGATGAAGCTGCCTTA TACCGATGTGATTGATGAGATCAAGATACATCACTCTCTCTCCATGCTGCCACTGCTGTGTCACGAG CACAAATTCAGAGACTATGATCCCAAGGGTACTACTGCTCCCGATGCTCTCCGCTGCTGGATCAAAA GGAGTTTGCCAAACCCAGAGAAATTTGATCCAGGACATTTCTGGATAAAATGGCTCTTCAAGACAGACACTACTT TGTTCCCTTCTCCCTTGSAAAGCGGCCCTGTGTTGGTGAGAGTTTGGCCCGGATGGAGCTTCTCTTCTTCAACA CCCTTCTGCAAAAGTTTTCCTGGAAGCTCTGGTGGAAGCCAAAGGCTTACATCAAGGCTATATTACCCGGATTA TCAATTTGGCGCCACTTACAGCTGTGCTTGTCTAGTAAGGGTTTATCTTCTAATCAATCAAAAGTAAT GGTCCCTTTTCTATAAATATCTTTTATGCTAAGCACTGCTGACGAGGCAAGAACATCATGCATG	U48220	TCTCTATGACATGATTACGAATTTAATACGACTCACTATAGGAAATTTGGCCCTCGAGGCCAAGAAATTCGGACACGAGG GTGATGGCTGCCCTCTCTTGGCTGCCCTTTGAATACAAATGACCCAGCTTCTACAGCTCTCTGACTGTCTGAA GGACACTTTGAGGAGGAATCTGGAATTCCTGCCATGCTCTGTAATGTTTCCGATGCTCTCTACACATCCACGGGC TTCTTGGCAAGGTATCTCTGAAAGAAGGCCCTTCTGTTGCCATGCTGGACAGCTGCTACTGAACACAAGGTGACC TGGGACCTGGCCAGCCACCCGAGATCTGACTGATGCCCTTCTGGCTGAGTGGAGAGGCGAAGGGAGTCTCTG AGACAGCTTCAATGATGAACCTCGTGTGGTGGTGGCTGACCTTCTGCGGGGATGTTGACACCTCCAC CACATGACCTGGGCCGTGCTTTCATGATCTGATCCAGATGTGAGTGGCGGAGTCAACAGGAATCGATGAGG TCTATAGGGCAGGTGGGGTCCAGATGTCAGACAGGACCAAGTCCGTTACCAATGCTGTGATCATCCATGANGT GCAGGCTTTGCAGACATCTCCCTCTTGGTGTGCTTCAAAAACCTTCTCTGCGGCAATTTGAATGACGNGGCTTCTTAT CCTAANGGG	M20131 M13961	TTGACCTTAAGGATATCGACCTCAGTCTCTGACAGTTGGCTTTGGCAGT GGANTGNCCTNTAGTGTCTGCTCAGCGGCCCGCCAGNGTGTGATGATATCTGACAGAAATTCGCCCTTTCGGCGAAATTTCT GGATCCCGAGTACATGCTGTACGCTGTGGCGAGTTCCGAAAGCGCAGCTCAGTGTGAGATATGGAGCTTCTG CTGACCCACCCAACTTCACTGTGAGAAATCAAGCAACCAAGGTTGTACATGCTGTGTTGGAAGATGATACAAAA GTCCGTTTATTACAGATACTCTGCAAGGGGTGAGACAAGTTGATGGGTGTTTGGCAGCTTCCCGAGGAGAAATGAT GAAACGAATATCCACAGGAGAAATCATGAGTTGATCCCAAGATCAGTACTACTGTGTGCTGTCTCTACTTTC ACTGGAAGTGACATCTTTAATGAATATGAGAGCGCATGCCCCTGGAAGGGCTTCAATCAATGATGATACCATC CGCCCCCTGGGGTCACTGGGGTGTGCTGGGGAGCCCTTCCGTTGGAGCAGGAGGAGCAATTTGATTAATCATC AGTGGCGCTCCGGAGCCCAAGGACAGGAGTGAAGGCTTGGGNCAGGCAAAATTCAGGACACTGGCGCGGT ACTAGTGATCCGCTGGTCCAAACCTTTGATGATAGCTGAGTATTTCTATAGTGNACCTAAATAGCTTGGCGTA ATCATGGTCAATGG
Cytochrome P450 1A1 Cytochrome P450 2C11 Cytochrome P450 2C23								
Cytochrome P450 2D18								
Cytochrome P450 2E1 DNA polymerase beta								

DNA topoisomerase I	AF140782	<p>AAATTGGCCCTCTAGATGCATGCTCGAGCGCGCCGACGTGTGATGGATATCTGCAGAAATCGCCCTTATCGGGGATC CTGCAGCAGCAGTITTAAGAGCTCACAGCCCTGTAGAGATCTACCAAGAAATCTTATCTTATTAAGCTTGCAGCT CGCGCTGTGCAATCTTTGTAAACCACAGAGGCGCCACCAAGACCTTTGAGAAGCTCAATGATGAACCTTGCAGTC TAAGATTGATGCCAAGAAATGATCAGCTAGCAGATCTCGAAGGACCTGAAAGGCTGAAAGGCTAAGGCTGATGCAAGTCA TGAAGGTGCAAGAGCACAAGAGGTAGTAGTCAAAAGAGGCTGACAGAGTTGAAAGGCTGACAGAGCTGATGAAAG CTGGAGTTCAAGCGCACAGCCGAGAGGAGAACAAACAATTCGCTTGGGAGCTTCAAACTCAATTTACCTTGGAGCC TAGGATCACAGTGGCTTGGTCAAAAATGGGGTCCCAATTCAGAGAAGATTACAACAAACCCAGAGAGAAGT TTGCTTGGGCCATGTATAAGCTTGGCCAAAAGSGCGAATTCACGACACTGGCGCGCTAGTGGATCCGAACCT CGGTCAAACTTGATGCATCTTGAGTATCTATTA</p>
Dynamin-1 (D100)	X54531	<p>TATGACATGATTACGAAATTAATACGAGTCACATATGGGAATTTGGCCCTCGAGGCCAAGAAATTCGCGACGAGGGAA GTACATGCTGTGTGGATAATCTGAAGCTCGGTGATGTGGAGAAGGGCTCATGTCAAGCAAGCATATTTTGGCCCT CTTCAACACTGAGCAGAGGAATGTCTACAAGGATACCGGCGAGCTGGAAGCTGGCTGTGAGACACAGAGGAGGTG GACAGTTGGAAGCTCTCTTCTGAGGGCTGGCGTGTACCGCTGAGCGTGTGGGACGAAAGCCAGCTGAGTGA CTGAGGAGAACGGCTCTGACAGCTCATGCACTCCATGGACAGCTTCTGTGACTTGAACGTGGCTCCCGCGACCC CAAGCGTCTCTATTCATCATCTGTGACTTGTGTGATGTGAGCTGATACATCCAAATGTGATGTGGTGAA ACTTGTGCCCCCTCTGTGGTATTCGCTCGGACATCTATAAATCTATAATATACCTATGATATATATATATACAT ATATATGGCTGACACAGCCCTGCTGTAGTGTGAGAATCAACACCACTGCTGCTTGTGGAGTCTGTGGTCCCAAC TACAAGGAACGCTGTACTCTGACATCCCGCTCCAAATGTGCGCACCTCCAGTGAGGCCCTCCCTGTGCTTGGNCTGT GGACAGCCATCCCTTGGCCATCCCCAC</p>
Elongation factor-1 alpha	XG1043	<p>CACATATGAACTACTAAGCTATGCTCAAGAGCTTGGNCCGAGCTCGGATCCACTAGTACCAGCGCCCGCAGTGTGTGGA ATTCCGCTTTTGAAGCTTTGAGTGAAGCTCTGCTCGGGACAATGTAGGCTTCAACGTAAAGAAAGCTGTCTGTCTCAA GACGTTAGACAGTGGCAATGTTGCTGGGACAGCAAAATGACCCCACTTGAAGACAGCTGGCTTCACTGTCTCAAGT TGATTTATCTGAACCATCGAGCCAGTCAAGTGTGCTGCTGCTGTTGAGAGAGTGGGAAGTGGCCCAATTTCTGAA TGCAAGTTTGGCGAGCTTAAGAGAAGTGCATGCTGTTCTGTAAGAGCTTCTTGGACTGCCACAGGCGCCACATAGA GTCTGTGATGCTGCGCAATTTGACATGCTCCCTGGCAAGCCCATGTGTGTGAAGCTTCTGTGACTACCTCCACT TGGTGGTTTTGCTGTTGTGACATGAGGACAGACAGTGTGCTGTGGGTGTCTAAAGCGCTGGAAGAGGCTGCA GGAGCTGGCAAGTCAACCAAGTCTGCCAGAAAGCTCAGAGGCTAAATGAATATTCCCTTAACACTGTCACCC AGTCTTAATCAAGGGGGAATTTCTGCAGATATCCATCACACTGGCGGCGCTCGAGCATGCATCTAGAGGGGCCCAAT TCCG</p>
Endogenous retroviral sequence, 5' and 3' LTR	D90005	<p>TATGACATGATTACGAAATTAATAGGACTCAGTATAGGAAATTTGGCCCTCGAGGCCAAGAAATTCGCGACGAGCCAC TGACAGAAGCACATGGGTGGAGGAAGAACCTCTGCGACTGGCTGATTTGATCCCTGTGAAAGCCGACAGCTTCTGTC CACAGACAGGAAGTCTCTTTCATGAATGAAGGTGAGAGTCAAGAGTGGTGTGCGCTGCGGTGAGAACACAAATGTCA TCTAGATGGCTGAACCTCTACCCCCCAGCAGCATCAGCCGACAGATGCTTTTGGCAATCTCTGATGCTGCCCTGATA AAGCCAAACAACTGTGAGTACTTATTTGCCAGGAAACAGAGGGAAGAGATTCAGTGACATGGGGCAGTGACAA AACAAATAAGTGGCTCGGAAATGGCTATCGATCAGGAGCTATCTGTTGATACGAGCCTCGACAGACAGCAGCTGAGA ACTAGGATTAACATAAGGGATGGCTCCTACTTAGAAAAGGCCCAAGTTGTTTTAAAGATAAAAGACNATGACACAC TTGAGGGGAAGGCTACTCTCCCAAGAAACAAAGAAAGAAAGTCACTTTGCCAAATACAGAAATGGAAGTCAATTTAGGA GATAAAANTTTGTCCCAAGTAGTTAGGTATATGTAATANACTTTAAAAATTTTANCCCAAGACAGACATAAAA</p>
Endase alpha	X02610	<p>TAGNTGNCAATAAATACTCAAGTATGCATCAAAAGTTTGGTACGAGCTCGGATCCACTGATAGTACCGGCGCCGAGT GTCTGGAAATCGCCCTTATCGCGGATCCGCTGCAGCGGAAAGTCTGCAACTCTCTGCTCAAGGTGAAACCA GATTGCTCCGTGACCGAGTCTGCAAGCGTGTGAAGCTGGCCAGCTCCAATGGCTGGGGTGTATGGTGTCCCAT CGATCTGGGAGACTGAGGACACTTTTATTCGCGAGCTGGTGGGCTCTGCACTGGGCTCAAGACTGAGTGGT CCCCCTGCCGATCTGAGCGCTGGCCAAAGTACAAATCAGATCCCTTAGATCGAGGAGGAGCTGGGACGACAAAGCCAA GTTTCCGCGCAGGCTCTTCAGGAACCCCTGAGTGAAGGATGAGCGGAGATCCCTGAGAGCTACCGAGTCTCC CTGTCTGTCTATCCAGCGGCTCAAGGCTGSCCCAGTGTTCGCCCTGCCATGTCTGCTCTCTAGTGTCCAC CCGACCACTGGAGCCCTGCTGGAGCCCCAGCTTTGTAAAGCTTGGCCCAAAAGGGCGAATTTCTGCAGATATCC ATCACACTGGCGGCGCTCGAGCATGCATCTAGAGGGGCCCAATTCGG</p>

Epidermal growth factor	U04842		ATGCCATGATTACGCCAAGCTATTATTAGGTGNCACATATAGAACTACTCAAGCTATGCTCATCAAGCTTGGTACCGAGCTCGG ATCCACTAGTAACGGCCGCGCCAGTGTGCTGGAAATTGCGCCCTTAAGGGCCCTCAGACCTGCCCCAGCAACAGAGCCAG TTCCGTAGTAAGTGGGAGCAGACAGAGAGTACCAGAGGTGAATAGCAACACAGGCTGAAGGGGTGTAGAGCGGCA GATCTGGTACTCTGCTGCTCCACGAGCTAATCACTGCAAGGCTCCTGAAGATAAGTCTCATAGCTAGCTGCTGCATAG CCTGCACCTTCTGCTTCTTCAAGCAGTCCGTTGAAGACGATCAAAAGAGAAAGTGGAAAGAAATCATCAGAAACC GAAGTCAGAGCTTACGCTGTTAAGCTGTGCTGCTTCTTCCCTGGACTGTTGGGCTCTTTCTTGTGTTCTCAGAAAG AAATGGGTAAAGCAGCGCATATGCTTTGTTGTTGACAGTAGATGATGATGATCATATAGATCTTAGCTCAGCTTACAGGCT TCACGGAAAGGCTGGAAACATTATAGATGCTGCTAAGATACACTGCAAGTGTGGCCCTGCTCATAAAGCTTAAGGGC GAAATCTGCAGATATCCATCACTGCGCGCGCTCGAGCATGCTAGAGCGCCCAATTCGCCAA
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	AF015304		TTATGACATGATTACGAAATTAATAGCACTACTATAGGGAATTTGGCCCTCGAGGGCAAGAAATTCGGCAACGAGGGG CAGCACTGTCTCCCTAGCAATACGACCCCTCCAAAGGTTATCCAGGCCTAGAGGTTTATCCGAGTCCCTAGGCCCAA GTGCGCCATGAGCAGCGACACCCGCTGAAGCTTGTCTGGTCAATTCAGCCCTGGTCAGGACAGCCGCTGTTGCCG GTCTGTGCTGCTGAGGGTGTGTTTATCCCCCTGCTGACGATGTGAAGTGTGAAGCAGCACTACCTGCTGCCCTC CCTTTTAAGCATGATGTCCTGGTTCACTACCTCATGCGCCCTTGGCTTCTCCAATGGCTACCTGCGCAAGCCCTCG CATGTCTTCGGGCCCAAGAAATCAAAACCGGCTGAGGACAGACTGCGGCAACATCATGTCCTCTTCTGTGTGTC TGGGCTGTGCTGTGGAGCTGTGTGCTCTTTGTTAAGGGACATTTGTGAGCGACCTGTGTGAGACAGAGAA CTACACTGCTGCTTCTGCTCACTTCTGCTGTAGGACGACGAGGGTCCAGAGGGCTGCTCTTCTGTCTTC CTCCGGCTGGGCCAGATGTCAGGAACAAGGANGACCTCTGAGGATGGACTTGGGATTTGGGGGTGCANANTG GTANGGGACAATGGTCTCTGA
Extracellular-signal-regulated kinase 1	M61177		TGGGAATGGCCCTCTAGATGCTGCTGAGCGCGCGCCAGTGTGATGGATATCTGCAGAAATTCGCCCTTCGCGGG ATCCAGCAGACACACTGGCTTCTGACCGAGTATGTGGCCACAGCTGTGACGAGCCCGCCAGAGATCATGCTTAA CTCCAAAGGGCTACCAAAATCTTGACACTGTGCTGTGGCTGAGATGCTGTGCTCAACCGGCTTAA TCTCCCGCGCAAGCACTACTCGACAGCTCAACCAATCTAGGTACTGCTGCTCCCATCCCAAGAGGACCTA AATTGATCATTAACATGAAGCCCGAACTACCTACAGCTCTGCTGCTCTTAAACCAAGTGTGGGCCAAGTT TTTCCAAATCTGACTCCAAAGCTTGTACCTGTGACGCGATGTTAACTTTAACCCAAACAGCGCATCACAGTA GAGGAAGCACTGGCTCAACCTTACCTGGAACAGTACTATGCTCCGACAGATGAACCACTGGCTGAGAGGCCATTCA CTTTGACATGGAGCTGGATGATCTCCCAACTGCGAGGCGCAAAAGGGCGAAATTCAGACACACTGCGCGGCGNTACTA GTGGATCGAGCTCGGTACCAAGCTT
Fas antigen	D26112		GGNCCAGCTTGACCGAGCTCGGATCCACTAGTAACGGCGGCCAGTGTGCTGGAAATTCGCCCTTCGCGGGATCCC TGACCTGTGTGGAGCTTGAAGACATCTTGGAGCTTGGCAACAGCTGTGACCAACAGCAACCAATTCAGAAACACAGGATTC CAATTAAGCTCTCTTGGCTGTGCTGCTCCCGGTTTGGCAATCTATTGTTGTTCAATAATAAAGGTACCCGGAA AGGCAACCTGGTACCTGAACTCTGGAATCCCAAGTCTGAAAGTGTGCCAATGATGCTCAGATGTTAACTTGAAT AAATACATCTGGAGAACTCCGAAATAATGAAATCTGTGACGCTTAAAAATTTGCTCGGACAGCAAGATCCCGGAA AGCAAGATCGATGAGATCGAGCACAACAGCCCAAGTGTGACGCTGAGCAGAAATCCAGCTGCTCCAGTGTGCTGT ATCAATCTCACGGGAAGACTGGTGGCTGTGAAGCTTAACTCAGGGTCTCAGAAAGCTTAAACCGCTGCGACATCGCA GAGGAAATTCAGCCATGTCTGGAGCTGCGAGTGAAGGCGAAATTCGATATCGCGGCGCTCGAGCATGTCATN TAAGAGGGCCCTATTCTATAGNCTACTAAATGCTAAACTCGCTTGATCAACCTCACTGT
Fatty acid synthase	M76767		AATACTAAGTTATGCAATCAAGCTTGGTNCAGGCTCGGATCCACTAGTACCGCGCGCCAGTGTGCTGGAAATTCGCC CTTCGCGGGATCCACCTTTAAGTCACTGAAAGGCATCAACATAGTCAAGCTCACCCAGGGGTAGAGATATGATG TGCTACTTGTGACTCTGCGCATCTTGGCTGTGGCTGAGCAACAGCAACAGCACTGTGTGCTGTGAGAGTAC CATATCCCTGGAAACAGGTGACCAAGACAGAGAGGGCTAATGCTTACCTGAGTACACAAAACCTGACCCAGGCTTGAGTG TCCAGAGAGTCTATCAGAAAGCCACAGCATTCAGTCTATCCACAGAGACAGAGTAACTGTCTCTGTGCTGCGCA GCTTAGAAACCTGAGTGTGCTGAGGTAGGTGTGAGGTGTGAGGTGTGAGGTGTGAGGTGTGAGGTGTGAGGTGTGAGGT AGCATGTGTTGGCTGTGGTCCCACTAGAAATTTAAAGCTTGTGATGCTACTTCTGTGGGAAGGACCTACCCCTG TCTCAATATGCTCTAGCTGTGGAGTGTGAGTGTGAGTGTGAGTGTGAGTGTGAGTGTGAGTGTGAGTGTGAGTGTGAGT CACTGGCGGCGCTCGAGCTGCTATGAGGGGCCCAATTCGCC

U58829		<p>erritin H-chain</p> <p>GGATTGGCCNCTAGAGCATGCTCGAGCGGCGCCAGTGTGATGGATATCTGCAGAAATTCGCCCTTTTGGCCAAAGC TTTCACATGCGCTTGGGACCTCAGCTTAGCTTTCATCGGCTTGTGTCAGCGGCTGCTTCAAGAGATATTTCTGTC CATGCCAGATTCCAGGGCTCCCATCTTCGGTAACTTCATGTCAGTCAGTGGCCACCAAGTCTTTAAATGGATTTACACTGCTC ATTGAGGTAATGCGTCTCAATGAAGTCACATAAGTAGGGATCATTTCTGTAGTAGCCAGTTTGTGAAGTCCAGTAG TTGTTGATTACACTCTTTTCCAGTGCAGTGCACACTCCATTCGATTCAGCGCTCTCCAGTCTCCAGTATCAGCGTCAAG TGCTTTATATCTGCAGGAAGATTCGTCACCTCGCTGGTTCGACGCTTCATCATGTTCTCAGCATGCTGCTCCCTCT TCATGAGATTGATGGAGAAGTATTTGGCAAAGTTCTCAGGGCCACATCATCCGGTCAAAATAACAAGACATGGAC AGATACAGCTGAGGGGCATCAACTCGAGGTGATCTGGCGTGTGATGCGAGTGTGATGCGAGATCCCGGATAAGGGGAATTC AGCACATGGCGCGCTTACTAGTGGATCCGAGCTCGGTACCAAGCTTGAGCATAGCTTGAGTATTTCTATAGTGTC CCTAAATAGCTTGGGTAAATCATGGNCAATG</p>	
AF020777	Focal adhesion kinase (pp125FAK)	<p>TTGGGAATTTGGGCCCTCTAGATGCATGCTCGAGCGGCCCGCCAGTGTGAGTATCTGCAGAAATTCGCCCTTATCGC GTCTAGATGCCCTTTGGGAGATCTTCTAGCATTTCCACAGCGGAGGAAAGTAACCTTGTCTCCTCGGTGCGCCCGCA CTCAGACTCCAAGTGCATGACAGCTGAAAGTCTCTCTGTAAAGTTAACTATATACATGTTTGTGAATCTG TTATTTTCAAATAGTGTTCAGAAACTCTGGATCCAAATGTGSCATTTTCTGAGATGAAGATTGTACATTAAGAA GCTTTTAAATATGTTTGGATTTCAAATTTGGGATGTATGCTGAAAGTGGTAAATCTCATACATGACCATGACTTCGAAT TGGAGAAGATGCTGTGAGGAGGAGGGCTCCCAAGACACTGAGACTGGTATCTCTCTGCCAGAAATTCCTGTCC AGACTGAATTCGAATATGCTATCTCATTTATAGAGAAGTGCATAAAGCTATATTTTGAAGATAGTGGTTTCAAA AGAAAATCTTCTGCCCTCCGTCAAGGGCGAATTCACGACACTGCGGCGCGTACTAGTGGATCCGAGCTCGGGA CCAACTTGATGCATACTTGGAGTATCTATAAGTGNCCCTAAATAGCTGCGCAATCN</p>	
U36994	Gadd153	<p>GGNTCCACTAGTANCGCCNCGCAGTGTCTGGAAATTCGCCCTTATCGCGGATCNTGAGTCTGTGCTTCTGCGCTTCCGCT TTGACAGCTGTCCAGCTGNGAGCTGGAGNTGTATGAGTAAGTATCTGCAGGAGTCTGTCTCTCAGATGAATTTGG GGGACCTATATCTCATCCCGAGAAACGAGAGGAAGTAACAAACCTTCACTATCTTGACCTTCGATCCCTGAG TTGGCTGACTGAGGAGCGCCAGCAGAGTCAAAACACCTCCCAAGGCCCTCGCTCTCCAGATTCGAGTCCAGTCA AGTTCTATGCTCAGGAGGAAGAGAGAGATCAAGGAAGAACTGAGAAACGGAAGAGTGGTGCAGTSCGCGAG CCCGGGCTGGAAACAGCCCATGAAGGAAGAGGACGAGAGATGAGAGGAAGTGGGACAGCTTGTCTGAAGAGA ACGAGCGGCTCAAGCAGGAATTCGAGCCCTGACGAGGAGTGAAGACACACGCGGGGCTGTGATCGACCCGA TGGTCAGTCTGCACCAAGCATGAACGTGTGGCATCACCTCTGCTCTCCCGAGTGTACCGACACCATCAC GCCAGTGCCAAAGCATGTAATCTCCAGTGCACTGCTGAGGAGGAAGCTTGCCCAAAGGGCGAATCTTCGAGATATC CATCACACTGGCGCGCTCGAGCATGCTTTAGGGNCCAAATC</p>	
L32591	Gadd45	<p>TTNGGAATGGGCCCTCTAGATGCATGCTCGAGCGGCGCCAGTGTGATGATCTGCAGAAATTCGCCCTTCCGCTTCCGCT CTAGAGACTTTTGGAGAAATTTCTCGGC CGAGAGCAAGATCTGAAAGGATGGACAGGTTGGGCGATGCCCTGGAG GAAGTCTCAGCAAGGCTCGGAGTCAGCGCACCAATACTGTGCGGCTGTACGAGCAAGCTGCTCAACCTGAG ACCCGGACACGTTGCTGCTGCTGCTGCGGATGAAGATGACGACCGGACGCTGGCTCTGCAGATCCATT CACCTCATCTGCTGCTTGTGAGAACGACATCAACTCTCGGGTCAGCAACCCCGGACTTACACTGTGTG CTGTTGCTACTGGAGAACGACAAAGACCCCGCTGACGCGGCGCTGCGCAGACCCCGGACTGAGCTGTG CTGGTGAACGACCCACATTCATCAATGGAAGATCTGCCCTTAAGTCAACTTATTTGTTTTCGCGGGAAGTCCG TACATGATCACTGGGTGCCAGTGTATTAATCTCCCGAAACGGTGAATCAAGCTTGCCCAAGGGCGAATTTNCAACACAC TGGCGGCGGTACTATGGATCCAACTCGGACCAACTTGATGCACTT</p>	
X52815	Gamma-actin, cytoplasmic	<p>CTTTATGACATGATTACGAATTTTATACGACTCACTATAGGAAATTTGGCCCTCGAGGCCCAAGATTTGGGCACGAGGG ATTTGCCCTGSCAAATGTACACACTCATGCTAGCCCTATGAACTGGAATTAAGCCTTTGAAAGAAATTTGTCTCTGA AGCTTGATCTGATATCAGACTGGATCGTAGAACTTGTGCTGATTTGACCTGTATTCAGACTTAAGTACTGTTCTTCTTGA GGTTAAACCAACAGCAGACTTCAGGATTTCCGAGGCTGGCAAGTTTGTGAGTCTGTGACTTAAGTACTTCTTCTTCTT CCAGTCTAACAGGGTGGAAAGTCCGAGCCTTAGGACCCAGTTTCTGCTGCTGCTTTCCTCTGACCTCCCATGG GTTTACTTTCCTTGGTGGGAAACGTTTGTGATCGACACTGTAATGATTCATCTTTTAAATATGTAAGGTTTT GTACTCAATTTCTTAAGAAATGACAAATTTGGTTTCTACTGTTCAGTGAGAACATAGGCCCCGACACACCTCAIT GTGTAAAGAGAAATAAAGTCTGCAGTAACNNONTAAAAANNCCANNNAACNNNAACCNATTTGGCGCGCGCA GCTTATTCCTCTTAGNGNGGGTTAAITTTAGCTTTTGGCNCCTGCGCCCGCTTTTACAAACGTCNGNGACTTGGNNNAAN</p>	

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Insulin-like growth factor binding protein 5	M62781	GAGAAATTGGGCCCTCTAGATGCATGCTCGAGCGGCGCCAGTGTGATGGATATCTGCAGAAATTCGCCCTTATCGCG GGATCTGCGCCGAGTACATGGAAGCTTCCCTCAGGAGTTCAGAGCGCCAGCCAGCTGGTGGCCGCTGCTGCTGCTG ACCTGCCAACTGTGACCCGAAAGGATCTACAAGAGAGAGTGCAGAGCTCTCTGTCGGCCGCAAAACGCTGGCAT CTGCTGGTGTGGACAAAGTATGGGATGAAGCTGCGGGAGTACGTCTGATGGGAGCTTTCAGTGCCACGCGC TTCGACAGAGTAACTTGTAGTGACGCTCCCTCTCTCTCCCTCTCTACGCCCGCCAGCTCCAGCCCA GCGCTCCCTCCACCCGAGAGTCACTTCTCATCTCTATTAGGGGAATATATACATATATATTGAGAAACT GAGAGCTCGGAACTCTAGCAAGGGCTAAGGAGACACTCCCATCCGACCCGGAAGAGTATCTCTATTGAAGC AAGTTGAACGACAGAGGGAAGAGAGAGGGAAGAGGAGGACCTCGAGGCGCCAAAGGGCGAAATTCCTCA ACACATGGGCGCTTACTAGTGTGATCGAGCTCGGTACCAAACTTGATGC CGAATTGGGCCCTCTAGATGCATGCTCGAGCGGCGCCAGTGTGATGATATCTGCAGAAATTCGCCCTTATCGCGGGA TCCTCTACATCTCTACCTGGACTCTGCTGCTCACTCTTACCAGCTCGGCCACAGCGGACAGACAGACCTT TGGGGCTGAGCTGTGGAGCTCTCAATTTGCTGTGGACCAAGGGCTTCTTACTTCAACAGCCCAAGCGCT ATGGCTCCAGCATTCGGAGGACCACAGACGGGCTTGTGATGAGTGTGCTTCCGAGCTGTGATCTGAGGAG GCTGGAGTACTGTGCTCGCTGAAGCCTACAAGTCACTGCTTCCATCCGGGCCGACGCGCACACTGACATG CCCAAGGCGAATTCAGCACACTGGCGGCCGTACTAGTGTGATCGAGCTCGGTACCAAGCTTGTGATGATGCTTGC AGTATCTATAGTGTACCTAAATAGCTTGGCGTAACTCATGTATGCTATGCTGTGTAATTTGGTATGCTTCCGCTC ACAAITCACACAACTACGAGCGGAGCATAAAGTGTAAAGCCTGGGGTGCCTAA TATGATGATTAACGAATTTAATACGACTCACTATAGGAATTTGGCCCTCGAGCGCAAGAAATTCGGCACAGGATGCTC TATTCCAAAGACTATCAAGTGTCTGAAACATTTGTAATAGTCTACTCTGAAAGATTTAATGCATCTCTCTCA TTATAATCTATTTCTGCGGTAAACAAATCTCTTTTAAATACCCACACACACACACACACACACACCTATTTCA CCCTAAGAGTTAGAAAGATCATTTCTTGAAATCTGATCTTTAAACAAATACCTGACCTATGCGCTTGGAG ACTCCTCTCTCTTTGAATGTCATGTAAGCTGGTATGCTGTAGATGAACCTGCTCAGACGCCACGCTCC AGGGTTTCTGTTACAGTTTGTGCATTTGGGAGGATGCGCAGAGACGAGCGCTGTTTGTCTTCCCTTTTAC TGTTGGCCAGCTACGCCAATGTGTGCTATGTTCTTAAAGAGTACTGACTTAAACAAANNINGAANANNA ANAAAAACCTTTGCGGCCCAAGCTTATCCCTTTAGTAGGGTTAATTTAGCTTGGCACATGCGCTGTTTATCA ACGCTGTGGACTGGGAAAAACCCCTGGCGTTACCCAACTTAATCCCTTCGACACATCCCCCTTTCCGCG	Insulin-like growth factor 1, exon 6	S43941	Insulin-like growth factor 1, exon 6
Integrin beta1	U12309	TTGTGAATTGGCCCTCTAGATGCATGCTCGAGCGGCGCCAGTGTGATGGATATCTGCAGAAATTCGCCCTTCCGGAT CGCTTGTAGGTGCACAGATCCCAAGTCTCCAGGCGCCAACTCTGTAGACCTCTGACAGCTCGCTTGGTGTCTGTGCA GAGCATAAAGAAATGTTCAGTGCAGAGCCTTCAATAAAGGAGAAAAAGACAGCTGTACACAGGAGTCTCCCA TTTCAACCTCACTAAAGTGGAAAGCAGGAGAGTGTGCCCGACTGTGCGAGCTGTGACCTGTGACCTGCAAG GAGAAGCAATTGATGACTGTGCTTCTATTTCCACTACTCAGTGAACACACGCTGTGACCTGACCTGATGTTGT GGAGACTCCAGACTGCTCTACTGTGCTCCGACATATCCCAATGTAGCAGGCGTGGTTCGCGAATTTGCTTATG GCCTTGCCTGCTGATTTGGAACCTTTAATGATATTCACAGAGGGAATTTGCTAAATTTGAAAGGAGA AAATGAATGCCAAGTGGACACAGCGGTGAAATCCTAAGCTTGACCAAGGCGAATTCACACACATGCGCGCGCTTA CTAGTGGATCGAGCTCGGTACCAAACTTTGATGTCATCTTATATGTCACACATAGCTTTGGCGGTAAT CN	Integrin beta1	U12309	Integrin beta1
Interferon related developmental regulator 1 (P4)	NM_019242	AACATGATTACGAATTTAATACGACTCACTATAGGGAATTTGGCCCTCGAGCGCAAGAAATTCGGCACGAGGGTGA ATGTAAACATGAGAAATGCTGCTGGCGAATCTTGGCATCTCTTGGAAATTTGGCCAGAGAAATGGAGAGTGAACGG GATTTTCCACAGAGAACTGTAAATTCGGTCTGAGGCGATGTATATGATAGCTGGGTCAAAAAGCACACCTATGAC ACGTTTAAAGAGGCTCTGGATCAGGAGTACCTGACCACTGAGACAAATGAAATCTCTGCAATGTATTTAGCTG GGACCCCTGTGATGCTGATGCTGCAACACTTAAACCATGAAGATCTCTGTTTGAAGGATTTATATACTCT GCAGCTTTCAAGGCTCGAACAAGCCGAGGCAATGCCGAGTAAGAGAGATGTTGGGAAATTTCTTCTAGAT GTCTGACTTGTGATGCTGTTTCTAATTTCTGCTTATATTTCTGCTACTTCTATATAGCTTATAGAGACT TTTTTATCTTGCTCACTAGATAATTTTGTATGGATGGGTATATTTAATTTATGNACAGTGTGACAAATTA TGAGTCTTTATCTGTAATAATAACTGATNACCAAAATTAAGGTTGTTGGATGTC	Interferon related developmental regulator 1 (P4)	NM_019242	Interferon related developmental regulator 1 (P4)

interleukin-18	AJ222813	iron-responsive element-binding protein	NM_017321	<p>GGCAATTGGGCGCTCTAGATGCATGCTCGAGCGGGCGCCAGTGTGATGGATATCTGCAGAAATTCGCCCTTATCGCGG</p> <p>GGATCTGGCTGCAATACCAAGAAAGGCTCTGTGCTCAATGCTCAAGAAATGGTGTATATGACACCACTTATACC</p> <p>TATACCTGAAGATAATGGAGACTTGGAACTCAGACCACTTTGGCAGACTTCACTGTACACCCCGAGTAATGCGGAGCA</p> <p>TAAATGACCAAGTTCTCTTTGGTTCAGAAAGAACCCGCTGTGTTCGAGGACATGCCGTGATATCGACCGAACAGCC</p> <p>AACGAATCCACGACCACTGATAATATATGATACAAAGATAGTAAGTAGGAGGACTGGGCTGTATCTCTGTG</p> <p>AAGGATGGAAGATGCTACCTCTCTCTGTAAACAAAATCATTTCCCTTTGAGGAATGAATCCACCTGAATAATATG</p> <p>ATGATATAAAAGTGATCTATATTTCTTCAGAAACGTTGTCAGGACACACAAATGGAATTTGAATCTTCCTCTGTA</p> <p>TGAAGGACACTTCTAGCTTGCCAAAGGAAGTATGCTAAGCTTGGCCAAAGGCGCAATTCACGACACACTGGCGCG</p> <p>CGTTACTAGTGCGAGCTCGGACCAAGCTTGATGATAGCTTGAATTTCTATATGTGCACCTAAATAGCTTGG</p>
JNK1 stress activated protein kinase	L27129			<p>TATGACATGATTACGAAATTAATACGAGTCAGTATAGGAAATTTGGCCCTCGAGGCCAAGAAATTCGGCACGAGGGGG</p> <p>AAGACCTTCACGGCGGTGATGAGGTTTCGACACCGATGTGGAGCTCACTTCTCCACATGGAGGCATCCTGAACTA</p> <p>CATATCCGAAGATGGCCAGTAGGCTCGCTCAGAGGACCGCTGTGCTGTAGACCAATGAGGTATACC</p> <p>AGCCCTCCGCTGGTGGAGCCCTGGCGAGCAGCCACTCTACTTCTCGTGAAGGTCTAGCAAGATGAGCAAGTGG</p> <p>CGCTGCAATTCCTGGAGGCTCAGCGCAGGAGTCTAGTTCGGTGAATTTGTTAATCTTTTATCTCTTTCTGTAATC</p> <p>GCGAACTAGAACTATGGAAGGTCATAGTCCCAAAGAGAGCTACTTCTCTTAAAGTCACCTCATCACCCGGCTATT</p> <p>GATTTTTTCACTCTGACTAATCTTCAGCAGAACTAGCCAGTATCTCAGAAGTGTCTCTACCCCTTCTGTTACTCTGT</p> <p>CTGTCTGTGCTCAGTGACACCTCTCCCTGGAGAGCCATTCTCCGTGTATCACACCAATGGTAACGACATAGCTTCA</p> <p>GACTGTGCACATTCATAGTAAATCGNGTGATCCCTTCTTCCAAAGTGAGCGGAAAAACCTTGTGGCTAAGGGCG</p>
Lecithin:cholesterol acyltransferase	NM_017024			<p>TTATGACATGATTACGAAATTAATACGACTCACTATAGGAAATTTGGCCCTCGAGGCCAAGAAATTCGGCACGAGGATG</p> <p>GGTATGTCGGGATGAGACAGTCGCGGCTGCACCCCTATGACTGGCGTCTGGCACCCCGCAGGAGTGAATACTA</p> <p>CCAAAGCTGGCAGGACTGGTAGAGGAGTATGTGCTTACGGAAAGCCGTGTTTCTTATTTGGACACAGCCTTG</p> <p>GCTGCTACATGTGCTCCATTTCTACTCGTCAGCCACACTGTGGAAGGACCACTTCAATTTGATGGCTTCATCTCTC</p> <p>TTGGGGCCCCATGGGGCGGTTCCATCAAGCCCCATCGGATCTGTGGCTCAGGTGACAAACAGGCGCATCCCCGATCAT</p> <p>GTCCAACATAAAGTGAGAGAAGACAGCGCATTAACCAACTTCCCTCGATTTTCCAGCTCAACCGTGTGGC</p> <p>CTGAAGACCACGTGTTCAATTCACACCAAACTTCAACTACACAGCCCAAGACTTCGAGCGTTTTTTTCAGACTCTTC</p> <p>ATTTGAAGAAAGGCTGGCCATGTTTCTACAGTCTCGTAGCTACAGGCGCTCCCGAGCGCTGGTGTAGAAATAT</p> <p>ATTGCTATACNGTGTGAAGCATGCCACACGCCACACCTACATCTATGACCACNACTTCTTACAAAGACCCCGGNG</p> <p>GCTGCATCTC</p>
L-gulonon-gamma-lactone oxidase	D12754			<p>TATGACATGATTACGAAATTAATACGACTCACTATAGGAAATTTGGCCCTCGAGGCCAAGAAATTCGGCACGAGGACCA</p> <p>AGCAATGGGAATGACTCTCTCTGACCAACAAGAAAGGCTGGGCTCTGGCGGGTCCCTCTCTGCCCTTCGCG</p> <p>ATCATTTTCCCTTACATCCAGGCAAGTGGCCCTCACTCAATCTGTAGTCTGTAGCAATTCCTGGGTTCACATTAACAT</p> <p>GCAATCCCTCTCAGGAGAAAGGGGATCCCTGTACATCATATATATCCAGCAATGAGGATGTGTTCTCTAGATTCTA</p> <p>TGGCTCCACCAAGGTATAGAGATTCCTGGGCGCTCGAGTTCTCCATCCCTCTTCAGAAGGGAGGATCCCTTGGC</p> <p>GAGAGTTTGGCTCAGAGGTGCATGAAGCATGCTCTCTCTCTACCTTGAAGTCCCTTGGGATGCTGCCAGAGAT</p> <p>GTCTGTGGTCTGGGGCAAGCCATCATTAACCGGCTTCAACCTGGCCCTTCTGTCTGCACTGGCCTGACCCCTCGCA</p> <p>GTGTCTCTCCAGAGGTGTTTAGAGTGGAACTCGCTTCAACGATGCTGTACCAAGTGTGCTGTATGCTTCTCTCCCTT</p> <p>CTCCTTGGAGACTACTCTTGGAGGGGATCCACCAATGCTCTTGGCTTTTCCCTGGGTATTGTTCTCTCCTC</p>

Liver fatty acid binding protein	V01235	TNGNNATGGCCCTCTAGATGTCATGCTCGAGCGGGCCCGCCAGTGTGATGGATATCTGCAGAAATTCGCCCTTCTAGTACC AAGTGCAGACCAAGAGAATTTTGAAGCCCTTTCATGAAGGCGATGGGTCTGCCTGAGGACCTCTATCCAGAAAGGGA GGACATCAAGGGGTTCAGAAATCGTGCAATGAGGAAGAAAGTCAAACTCAACATCACTATGCGTCCCAAGGTG ATCCAAATGAGTTTCACTTGGGGAGAGTGGAACTGAGAACCTATGAGTGGGAAAGTGGAGCGAGTGGTTA AGATGAGGGTGACAATAAATGTTGACAACTTTTCAAGGGCATAAAGTCCGTGACTGAAATCTCAATGGAGACACAATCA CCAATACCATGACACTGGGTGAAGGGGAATTCAGACACACTGGCGGCCCTTACTAGTGGATCGAGCTCGGTACCC AAACTTGTATGATGACAGCTTGAATTTATAGTGTGACCTAAATGACTTGGCGTCTGATGATGATGCTTCTCTGT TGAAATGTTATCCGCTCACAATTCACACACAATACGAGCGGGAAGCATAAAGTGTAAAGCCTGGGGTGCCTAATGA GTGAGCTACTCCATTAATTTGGCTTGGCTCTTGGCCCTTTTCAGTGNNGAAACCTG
Macrophage inflammatory protein-1 alpha	U22414	GGCAATTTGGCCCTCTAGATGTCATGCTCGAGCGGGCCCGCCAGTGTGATGGATATCTGCAGAAATTCGCCCTTATGCGG GGATCTGGGCTCTGGAACGAAGTCTTTCAGCGCTATCTGAGCTATGAGCTGACCCGACTGCGCTGCTTCTCTCTAT GGACGGCAATTCACGSAATTCATGCTGACTATTTTGAGACAGCAGCAGCTCTGCTCCAGCGGGGTGCTATTTTC CTGACCAAGAGAAGCCGCGATCTGCGCTGACCCCAAGAGACCTGGGTGACAAATCATCATGACTGAGCTGGAAC TAAATGCCGTGAGATTAGGCGAGCAAGGAACCCCAACCTCGTGGGCCGCTGTAGACGAGCGGCTTGAGCCCTC AGAACATCTGCCACTGCAATCTCCCTCTCTATAAGCTGTTTGTCTGCGCAAGTACGACATCCAGGGACTCTCA CTTGAATTTTTTAAATTTAATCTATGATTTAATCTATTTAATTTTAAATTTTATTTATTTGNCACATTTGTGTTGTA GCTATTATCTGAAAGACCTCAGGGCACAATCTCTAGCCCTCCCGCAAGCTTGGCAACAANGGGGAATTCACGCA CACTGGCGGGGTACTAGTGGGATCCGACTCG
Macrophage inflammatory protein-2 alpha	U45965	CGCCAGTGTGGAAATTCGCCCTTTGNCGGATCCGCGAGCTCTCTCAATGCTGACTGGTCTTGTCTCTCTCTGCTT CCACCAACTGATGAGGACGAGTGGAGCTGAGCTGAGCTGACATCTTGGAGAGCCCTAGGTTGGGCGAGCCATGGCC CAGGCCCTCTGACCCACTCTCTCTACAGGGTGTGTGGCCAGTGAAGCTGCGCTGCTCAATGCCCTGACGACGAA CTACCAAGGTTGACTTTCAAGACATCGAGAGCTTGACGGTGAACCTCCAGAGACCCCACTGCGCCACAGACAGAA GTCTAGCCACTCTCAAGGATGGTCATGAAGTTTGTCTCAACCTGCAAGCCCTTGTGTGAGGATCGTGCACAAA GATCTGAACAAAGCAAGGCTAAGCTGAGCTGGAAGGAAGAACATGGGCTCTGTACTCTCACTCAACGGGCAAGATCAAA GAGAAAGAAACAACTGCAACCCAGAGGCTGGATCGTACTGATGTGCTGCTGCTGAGTTTCTATTTATTTT ATATATGATTTATTTATTTATTTTCAAGTGTGCTAGATGTTGTACTATCTGATGATTTAAAGATGATGCTTGGCCAGC TCACTGTAAGCTTGGCCAAAGGGCGAAATTCGACAGATCCATCACAACACTGGCGGCCGCTCGAGCAGCATTNAGNGAT CTAANGCCCATNCAA
MAP kinase kinase	D14591	ATGCGAAATTTGGGCCCTCTAGATGTCATGCTCGAGCGGGCCCGCAGTGTGATGGATATCTGCAGAAATTCGCCCTTATGCG CGGGATCCGTCGCTGAGAGACTCCAGGGACTCACTACTCTGTGAGCTGGACATCTGAGCATGCGGGCTCTCTC TGTGGAGATGGCAGTTGGAAGATACCCATTCCTCTCTGATGCCAAGGAGCTGGAGCTGTGTTTGGATGGCCA GGTGGAGGAGACGCGCGCAACCCACCGCCAGGACCCCTGGAGGCCCTCGACTGCTATATGGAATGGA TAGCCGACCTCCCATGGCAATTTTGAAGTTGTGGATTACATGCTCAATGAGCCCTCTCCAAACTGCCAGTGGAGT ATTCACTCTGGAAATTTCAAGATTTTGTGAATAAGTCTTAATAAGAACCTCTGACAGAGACGAGATCTGAAGCAGCT CATGTTACATGCTTTTCAGAGATCTGATGCCGAGGAGTGAAGCTTCCAGAGCTGGCTCTGCTCCACCATTTGGGC TTAACGACCCGACACAAAGCTTGGCCAAAGGGCGAATCCAGACAGCTGCGCGCCGCTTACTAGTGGATCCGA GCTCGGTTACCAAGCTTTGATGCATAGCTTGAAGTATCTATAGTGTCACTTAAATAGCTTGGCGTAAATCATGGCATAGCT GN
Matrin F/G	NM_022667	TATGACATGATTACGAATTTAATACGACTCACTATAGGAATTTGGCCCTCGAGGCCAAGAAATTCGGCAGCAGGAAG TCTTAAGGCCTGAAGTACTAGCTGAAATGAGACCCGGGCTGAGAGTTTGAATTTCTCCAAGTCTTGGAAAGGTAT CCCGAGTGGCCCTACGCTCTCCAGACAGATGCCAATTAAGGCGGCTGTTTTCACAGTGTCTCAGGAA TACTTAATGAGTGAAGAGGGAGTCTTGGCTTCTGGCCAGCAGCCCGGATCTCTCTGCTGCTGCCACACCC AGGAGAGCCGAGAGGAAGCAGGTGTTTGGTTTCTATGACTCCAGGGGCTGAAGAGCTGAGTGGTGTGCTCACT TTTCATCTGATTCGCTAGCATGAAGCGGCTCGAGCTGTTTGGAAACCAACCATTTTGGGAAGTATCCCT CTCTAAACTATGCCCGGTATCTGAGGAGGAATGAAGGGACCAACAGGCTGGATGATCAAAACTGTGTTCACAG AACCTGAGGCGCTATCTCCGCTGGGATAGCTCTTCTTCTTACCGCTACAGACAGCAACCAACCTTAGA ANGGCCAGCTNCCNCCCTCACAGTGGAGACAAAGGCTTTTCTCTCAANACACNAATGGCGATCTCT

Matrix metalloproteinase-1	X91785	NM_017125	Melanoma-associated antigen ME491	TTGGCAATTGGGGCCCTCTAGATGCATGCTCGAGGGCGCCGACAGTGTGATGGATATCTCGAGAAATTCGCCCTTATCGG GGATCCGGTACTGGAGTGGGCTTGCTGTCTCTTTAGCCAGCATGGACCATGGACCAACCAAGGCTGTCTTACTGCT CAGCGTTCACCTGCTGACCAAGGCTGACCCCAACCACTGGCCCAACCCGCTCTACCAACAAGGACTTTCGCTCCCTCCG AAGCGAGTGGCAGCGGTGGTGGAGGTGGGCTGTTCACCAATCTGGGCTCCCTCCCTCCAGCTCCCTCTCTC AGTCCCTAAATGGCTTCTCCACCTCACCACCGCTTCTTCTCATAGGTGGCTTCTGAGGGCTGAGGACGAA GATGGTCTGGCCTCTGGCCCTCAAGGGACCCCTCATAGCTTGGTGTGTGCTCCACCCCTATTGAATGTTGCAAGGCT CTGCACATTGAAGCGCAGGACCCCTGACCTTACAGGCAAAAGGCGCAATGGGCTCATCTGCTCTTCCATCCCCCTA ACTACATATCTAAATCTCTGAACATGACCTCAGGAGGCTTTGGGAGGCTTTGGCCAAAAGGGCGCAATTCAGACACAC TGGCGGCGTACTAGTCCGAGGCTCGGTACCAAC TCTCTATGACATGATACGAAATTTAAATAGCACTCACTATAGGAAATTTGGCCCTCGAGGCCAAGAATTCGGCACGAGG TCTTAAGCTTCCACAGTAAAGATACCCCAACATGACGCTGACCTCAAAAGAAAGCCACATTTCTGTGGCTGGGTTT CTGGAAATTTTCTTCAAGATCTGTACAGGGCCAGGAGATCGCTCAGTGTAAAGCCCTTAAGGCTGTAAAGCTTG AGAACCAAGTTTGACCCCAAGAACCCAGGAAATGTGAAGGAGGACCAACTTCAATATTTCTTGTGGTTTC TATACTATGCCACAGTGCACCCCTCTCTCTAGATTGTGTGTACATGAGAAATTTACCTTACAGACAACAAACGGCCA CCATTTTGGACAAATTCAGAAAGAAATAATGCTGTGGAGCCCTTAACCTACAGACAGTGGCGCGCATCCCGGT ATGGCCAAAGGACAGGCTCCCGGATCTTCTGTCATCAACATCACTGTGGGCTGTGGAACGAGTTTCAAGGAAATCC ACCATCATACCCAGGGCTCGGTGGAACATATAGCCGGCATGGCTGANGAAGAACGTACTGCTGGTGGCTGGAGCA GCCCTGGCATTTCTTTGTGGAGGCTCGGGCATTTATCTCTCTCTGCTGGNGAAGANTATCCCGGAGTGCG TAGGAAGTAATGG TCTATGACATGATTACGAAATTAATACGACTCACTATAGGAAATTTGGCCCTCGAGGCCAAGAATTCGGCACGAGGCA TAAATGACATAGTTTCCATGTTGGAGTGGGTGATAGAGAAGGCTCCCATCTCTGGTAAAGCGGCTCAGGACGCCC CTCATCTCCACAGGCATGTAAATCTGCTCTCCCAAGTGGCAGCACCAAGATGCCCATCTCTGGAAGGTTT CATCCCTGACGGCTGTCTCCACAGCTCATGCTGGTACAGCTCCCATCTCACTCACTGACCTCAGCTCAGTG GATGACAGCGGTGAAGCCAGGCCAGCCACCTCAGGTGACATCACTTCAGTCTGGGGTGAAGGGTCA ATGCTCTTTGGGGGATCTAAGCGCAGCGAGCTCTCTCCGCTGCTCCAGGATCTGCGAGGCACCTCCAGCAC GTGCCCTCCAGGTAGGCTTGAAGTCTGCTGCAACACCGCCGATCCCATCTGTCGGGTGATCTGTCGCCCA AGTCCGCGCCGCTCCACGCTTCAGGCTCTGTCANGGGGATGTAATCGCGGCGCTGTAAGCGCTCTGCTCTTAT ACCCGGGAGGAGGNTTCCCGTTCCACGCTCAAGCCATACATTTCTCTGATGGGGGTGAAANNCGCG CTCGGCTCTGG
MHC class I antigen RT1.A1(f) alpha-chain	X99767			GGAATTTGGCCCTCTAGATGCATGCTCGAGGGCGCCGACAGTGTGATGGATATCTCGAGAAATTCGCCCTTATCGCGG GATCTGATCAAGCATACTTGGCCCTTATTTTCAACAATCTGGAAGATTTCCAAACATTAATGAGGAATATCTTGA GTTTGATCTGCCCTACTTGTGATGTCATCTGCTACTCAGGAATCTCCACACCCCTGTTTCGCTGAGGAATGGA AAAAGAGCATAGGCTGTGAGCTCATCTTGCCATCATGTTGCTACTTCTCTCTGACCTCCATACATAATTTGT TCTTCTTGACCACTTCAGGAATTCGGAATGAGTAAGTGTGGTGTGATGACATGACATGACATGACAGGCCATGGA GGTGACAGAGGCTCTGGAATGACACACTGCTGCGTTATCTCTATCATTTACGCTTGTGTTGAGAGAGTCCCGAA GGTATCTCTCCATATTTTCAGAAAGCAGATTGCAAAATATCTGCAAAATCTGCAAGGCTCCGAGTTGTATAGGGAGACAG AGACCCGAGTGAAGCTTGGCCAAAGGGCAATTCAGACACACTGGCNGGCCGNTACTAGTGSATCCGAGCTCGG NNCCANCNTTGAN
Monocyte chemotactic protein receptor (CCR2)	U77349			GGAATTTGGCCCTCTAGATGCATGCTCGAGGGCGCCGACAGTGTGATGGATATCTCGAGAAATTCGCCCTTATCGCGG GATCTGATCAAGCATACTTGGCCCTTATTTTCAACAATCTGGAAGATTTCCAAACATTAATGAGGAATATCTTGA GTTTGATCTGCCCTACTTGTGATGTCATCTGCTACTCAGGAATCTCCACACCCCTGTTTCGCTGAGGAATGGA AAAAGAGCATAGGCTGTGAGCTCATCTTGCCATCATGTTGCTACTTCTCTCTGACCTCCATACATAATTTGT TCTTCTTGACCACTTCAGGAATTCGGAATGAGTAAGTGTGGTGTGATGACATGACATGACATGACAGGCCATGGA GGTGACAGAGGCTCTGGAATGACACACTGCTGCGTTATCTCTATCATTTACGCTTGTGTTGAGAGAGTCCCGAA GGTATCTCTCCATATTTTCAGAAAGCAGATTGCAAAATATCTGCAAAATCTGCAAGGCTCCGAGTTGTATAGGGAGACAG AGACCCGAGTGAAGCTTGGCCAAAGGGCAATTCAGACACACTGGCNGGCCGNTACTAGTGSATCCGAGCTCGG NNCCANCNTTGAN
Multidrug resistant protein-1	M81855			GAATTTGGCCCTCTAGATGCATGCTCGAGGGCGCCGACAGTGTGATGGATATCTCGAGAAATTCGCCCTTATCGCGG CCTGGAACAGTGTCTAGATGGCAAGAAATAAGCAACTCAATGTCCAGTGGCTCCGGGCCCACTGGGCATTTGT GTCCAGGAGCCCATCTCTTGTGCTGAGCATCGCGAAGCATTTGCGTACGAGCAACCAAGCAACCGCTGTCTGTCT CATGAGAGATCGTGAAGGCGCAGGAGGCCAACATCCACAGTTTCTCGACTCACTGCCTGCAAAAAATACACAC CAGAGTGGAGACAAAGGACTCAGCTGTGGGGGGGGAAGAGCGCATGCGCATCGCGCGCCCTCGTCA GACAGCTTCAATCTTACTTCTGATGAGCGACATGACTCTGATCGGAGAGTGAAGAGTCGTCAGGAAGCG CTGGACAAAGCCAGGGAAGGCCACCTGCAATGTGATCGGCAACCGCTGTCCACCATCCAGACGACACTTGA TGTGTGATTTAGAACCGGCAAGTCAAGAACCGGCACTTGGCGAGGGCGAAATTCAGACACACTGGCGCG CGTTACTAGTGSATCCGAGCTCGGTACCAAGCTTGAATGCACTTCTAGTATGATGTCACCTAAATCTTG

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Organic cation transporter 3	AF055286		<p>GCGAAATTGGGCCCTTAGATGCATGCTCGAGCGGGCGCCAGTGTGATGGATATCTGCAGAAATTCGCCCTTATCGCGG</p> <p>GGATCCCTCTAGGTGGCGCGCTTCAAGGAACCGTAAGATTCAGAGATTTTATATATGGAAATAGATAAAGATTTA</p> <p>TGATGCTACCCCAAGCTCTGGGAACACATAACCTTTGACCTCTTACGAGTATTCAGTAAGTCCAGTACAGATTTCTGCGCT</p> <p>AGGTTCCTCTTTCATTTGGGACCAATGTCTTGACCCCTGCTGAGGAGGATGAGAAAGCGGATCCACAGGTTCTCCAGT</p> <p>TCTCAGGACAGTCCCATCCAGGAAGCAGGATGAACATATCAGGCGCTGCGAGTGAACCGAAAGTGTACTCAGCTGATC</p> <p>TGATCAAGACTGAGCAGTGAAGGTGTTCTGAAGAGCTGAGAACTGCTATTTCTGATTTGCGTTAAGCTCCGGAATACA</p> <p>TGCTTTCAGAGAGCGACATGCTGGTGGCCCTCCCTTCTGTCCCAAGGCACTCAGAGTTCCAGGCCCCAGGTT</p> <p>AGGCATCTCAGGCGCAAGGGCGAAATCCAGACACATGGCGCGCTTACAGTGTGATCCGAGCTCGGTACCAAGCTT</p> <p>GATGCATAGCTTGAGTATTTCTATAGTGTACCTAAATAGCTTGGCGTAAATCATGNNCATAGCTGTTCTCTGNGTGAAA</p> <p>TTGTN</p>
Omitline decarboxylase	J04792		<p>TTTGAGAAATGGNCCCTAGATGCATGCTCGAGCGGGCGCCAGTGTGATGGATATCTGCAGAAATTCGCCCTTATCG</p> <p>CGGGATCCCATCGGAGAACCACTGGGAGCTTTACTAAGGAAGATTTGACTGCCATATCTCGATGAAGGTTTC</p> <p>ACTGCTAAGGACATTTGACCAAAATAATCAATGAAGTTTCTCCTGATGATGAAGTATCTGATTTGCGGGAC</p> <p>TCGGAGACGTTCTAAAGAACATCTGAGTGGCTGAAAGCTCTTCCCGGTGTACTCCCTCTGCTGCTCAAGTGTGA</p> <p>ATGACAGCAGAGCCATAGTGAACCTGGCTGGCCATGGGACGAATTTGATTGTGAAGAACACTGAAATACAG</p> <p>TTGGTGCAGGACTTGGGTGCTCCAGAGAGATTTATCATGAAATCTTTGAAGCAAGTGTCTCAGATCAAGATGA</p> <p>TGCTGCCAGTATGAGTCCAGATGATGACTTTTGACAGTGAATTTGATGATGATGAAGTTGCCAGAGCATCCCAA</p> <p>GGCAAAAGTTGTTTGGGATTTGCCACTGATGATTCCAAAGCAAGTTTGTGGCTCAGTGTAAAGTTTGGTGCCACAC</p> <p>TGAAACCANCAGGCTTCTCTGGAACGGSCAAAGAGCTAA</p>
Osteoadivin	AF184983		<p>CNNGGTATGACATGATTACGAATTTAATACGACTCACTATAGGGAATTTGGCCCTCGAGGCCAAGAAATTCGGCACGA</p> <p>GGCGCGGCATCTGACTCTGGTGGAGTGGAGTGGAGTCAAGTCAAGCCCTGACTGGCTGAGGGCGGGCGCT</p> <p>CCGAGTCAGCATGGAAGTCTCGCGGGTCTGTTATTTCTGCTGGCTCGAGGACTGCCCTCAGGCGGGCC</p> <p>AAGCGGTTCCGTGATGTGCGGCCATGAGCATATCCGGATACATGAGGGAACCAACAAATTCAGTGGCTGGT</p> <p>CTTCAGATGAATGATGGATGAACAGCTGTATCCAGTGTGGAGGAGGGGAGGAGTGAAGGAGTCTCTG</p> <p>GGAGGAGCCGCTGTGACGCGACCCCTAACAGTGTTCACCGGCTTGGTGGTTCATATACATCTCGTAGTG</p> <p>AACTGGTGTTCACAGATGCCAGAGGAATGCCAACGCTATATGCTATGAGAGAGACTGCAAGAGTGATTT</p> <p>GGAGCTGGCTTCTGACCCGTATGTCTCAACTGGACCACAGGGGCGAGACGATGANGACTGGGAAGACACACACGAC</p> <p>CAAGGCCAGCACTCANGTTCC</p>
ps3	X13058		<p>TTGGCAATTTGGGCCCTTAGATGCATGCTCGAGCGGGCGCCAGTGTGATGGATATCTGCAGAAATTCGCCCTTTCG</p> <p>GGGATCCAGGCAGACTTTTCGGCACAGCTGGTGTACCGTATGAGCCACCTGAGGTGGCTCCGACTATACCACT</p> <p>ATCCACTACAAGTACATGCAACAGCTCTGCTGAGGGGGCATGAACCGCGGCCCTCTTACCATCATCACGCT</p> <p>GGAAAGCTCCAGTGGGAATCTTCTGGGACGGGACAGCTTTGAGTTTGTGTTGTGGCTCTTCTCGGAGACCGCT</p> <p>CGGACAGAGGAAGAAATTTCCGCAAAAAGAGAGCATTTGCCCGAGCTGCCCGCAGGAGTGAACAGAGAGAC</p> <p>TGCCACAGCAAGCTCTCTCCCGACAAAAGAAAACCACTCGATGAGAAATTTTACCCTTAAGATCCGCTG</p> <p>GGCTGAGCGCTTTCAGATGTTCCGAGAGCTGAATGAGGCTTGGAAATTAAGAGTCCCGCTGCTGCCGAGAGTCT</p> <p>AGSAGACAGCAGGGCTCACTCCAGCTACCCGAAGACCAAAAGCTTGGCCAAAGGGCGAAATTCACGACACTTGGCGG</p> <p>CCGCTAGTGTGATCCGACTCGGTACCAAACTTGATGCATAGCTG</p>
ps5CDC	U05341		<p>NACTCAAGCTATGCAATCAAGCTTGGGACCGGAGCTCGGATCCACTGACNAGCGCGCGAGTGTGCTGNAATTCGCCCTT</p> <p>TCGCGGGAATCCGTATGTGGCTGCGCTGGGCCCCAGATGGACGACATCTGGCAAGCGGGTGGCAATGATAACATTT</p> <p>TCAACATGTGGCCTAGTGTCTCGGAGAAAGTGGCTGGTTCCTGACCGAGAGGATTCACATCAACATGAGTGTCTGTC</p> <p>AAGGCTGTGCATGTTGCCCTGGCAGTCCAAATCTCTGGCAACGGAGGAGGTACCGAGCAGACATTTCCGCA</p> <p>TTTGAACGCTGTCTGTGGAGCCTGTGTGAGTGTGCTGATGTCATTTCCGAGTGTGCTCATCTCTGGTCTGCC</p> <p>CACATAAGGAGCTCATCTCAGGCATGGCTTTGCCCAAGCAAGCTGTTATTGGAAAGTCAACACTATGGCCAA</p> <p>GGTGGCAGAGCTCAAGGTACACAGCCCGGCTCTGAGTCTCACATGATGTCGAGCGGGCCACAGTGGCATCT</p> <p>GCAGCAGCCGCTGAGACTCTGGCGCTGTTTGAAGTCTGAGCTGTGGCGCTTGTGGCAAGTGTGGCCAAAGGGCGAAATTC</p> <p>TGCAGATATCCATCACACTGGCGCGCTCGAGCATGTCATCTAGAGGGGCCCAATTCGCAA</p>

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Phase-1 RCT-139		<p>GNGCTAAGNNTATGACATGATTACGAATTTAATACGACTCACTATANNGAATTTGGCCCTCGAGGCCAAGAATTCGGC ACGAGGAAAGGTTTTTTTTTTTTTTTAAATGATTCCTAAACAGGCATCTGAGTAGGAACGTAGGTTTATATAAA TACATGGNAACTGAAGTTTCTGAGATGGGACTGCTCTGTAGCCAGGCTGATGGCTGGTGTCTGCCANCNGCT AGGGAGGAGAGATGTANATTTCTAGCAGATGTGGCCAGCCAGCCTGCTGAGGACCCAGCTGCTCCCTC ATCGTCCAGGCGCTGATTACCCATATGCATGGTAGTTCTAAATTTGAATTCAGGCCCTCAGGCTTCAAGTTAAAC ATGACATGAGCAGTCCCTGGCCACTGGTTTCATGTGCTCCCTAAANGCATTTCCCTTTGGCATATACTGATTTT TGACAATGCTACCCTCTGGGTATACCTTACATGTTTCCCGGATATTTTAAATTTGAATATCTGATAAAT GTTTAGAGACTNTTCTACAAATTTCTATGATCAAAATATTTNCTAAGTAGAGAAATAAACCTTCNGANTAAACTCTG TAACCTGGGGNN CCCAAGGNTTTTNCNTT</p>
Phase-1 RCT-144		<p>TTATNANATGATTACGAATTTAATACGACTCACTATAGGAATTTGGCCCTCGAGGCCAAGAATTCGGCAGGAGT TCCCTCTCAGGAGGTAATGAAAACTTAAGAGAAAAAGCTTAAACCCAGGAAACCTACAGGAAAAATGGAATG GAGACCCACTGTCTTTGCCTAAACCCAGAAAAAGAGCTTTTCCCAAGGAGAGTTGGCCAGTATCTTGAA GAGATGGCTACTAGCAGCATAGTGTCTTAAGAAAAAGAGTCTTACCTAAAGAGAGTTGGCCAGTGAACCTGA AGAGGACGAAAGCCCATCACCCCTAAGAAAAAGAAAAATTTCTGAGGAGCCTGAGGCTGCTCAAGCTGCACA AAGAGCAGCACAAGAAAAAGAAAAAGTCCGAGAGGCCCGGAGGAGGATTAAGATGAGACCTGCTTGGTGGAG GGGCATCTTTATGTTGGCAGTTCTCTCTGCCCATGATAACCCCAATAAAGCGCAAAACCCGAAAAANNANNN NNAANN TAGCTTGGCACTGGNCGTCTTTTACAACGCTGCTGAGTGGGAAAAACCTGGCGTTCCCAACTTTATTCGCCCTTGCA CACTGCCCTTTGCCGAGC</p>
Phase-1 RCT-145		<p>TATGACATGATTACGAATTTAATACGACTCACTATAGGAATTTGGCCCTCGAGGCCAAGAATTCGGCAGGAGG GAACCTCGCGGGGGGAGCCGCGAGATGGACACCCCTCCGCTCTCAGACTCGGACTCCGGTCCGATGAGTGC CTGGCCTCAGATCAAGATTTGACAGATGGCTTTCCCGGAGCTCTTAAGCCAGCTCAATTCGCTGCTAGAGAA GCGAAGAGGCGGTGAATGACGAGATGGCTGAAGCAGTGTGGCTGAATTCAAACGGGATCTGGAGTGGGTT GAAAGCTCGATGACCTGGCTCTGCTGAGCCAGTGAACCTAGTCAACACCCAGAACAGGACCAGA AGAAAGGTGTTAATCCAGAAAGACGACTTCAGAGAGGAAATGAGTTTCTACCGCGCCCGGCTGCTGCTTGA GTATTACCCGACTCCACCACTCCAGTCCCTACGAGAGGCCCTAGTATTATTTGAGAAATGGCCCAAGTCTGAT CAACAGATGCAAAAGATTCCAGAGAGCTGACAGACTAAACAGGCTGCCATGGAGAAATCTGAAAGGGCCAGCACT TCGAGCGCTTAGGAAATACGGAAGAGGTCGCAACTGAGGTCCTTCAGAAAGAGCAGCAGGAGAAAGCGCATATG</p>
Phase-1 RCT-146		<p>A GGGGGGGTCTCNANATGATTGAAATTTAATACGACTCACTATAGGAATTTGGCCCTCGAGGCCAAGAATTCGGCAG GAGGACATCTGTAGCTGGGAGTCAGTTAANGTGGTCTCTCTCGCGCAACATGTTCCGACCAAGCAAACTAC GTCNNGGAGCCTACAGNNNAGTGGTGGCTTCTAAGCCCTAGGAAGTGTGGCTCCTCCACCTTTGTACCA ATTCTCCGTTCTGTCNAGAAAGCTGAAATAGATGATGAGGAGGAAACCCAGTCTGTGCGCCCAACTCCCNAN TGGCAAAAGGNATCGNGAATTTCTCAAGCTGNCCTCANGATTTCTAANGGATAAACCCNGATTCNTGTANNGC CCNGGGCTGNGGCTTTNAAATNCNATANTNGATNAC</p>
Phase-1 RCT-149		<p>CTCTATGACATGATTACGAATTTAATACGACTCACTATAGGAATTTGGCCCTCGAGGCCAAGAATTCGGCAGGAG GGCGCCCTACTCGGACATGAGAAAGGCCAACTGGAAACCTGAGACAAATCTTCCATGCTCGGGGAACTATGAT GCCGCCGAAAGGGTCTCGGGAGCCTGGGCTGCTAAGTCACTAGTCCAGAGAGGGTATTCAGAGATTAA CAGGACACGGAGCAGAGGACTCAAGAGCTGACCAAGTTTGCCAAAGTGGGCGCGGAGTGSCAAAGACCCCAACC ACTTTCGACCTGTGCTGCCAGGAAATCTGAAATTTCTTCTATGTTTTCCTCGCGGCGCACAGCCGCCAAGG AAAGGGGCAATTAAGTGAAGTATTTCTCTAAACCTGGATCCCTAAACATCCCAATGCTGTAATAATGCTGT GAAATGCANNANNN TTCCCTTTAGTGAGGGTTAATTTAGCTTGGCACTGGCGCTGTTTACACGCTGCTGAGTGGGAAACCCCTGGCGTT ACCCAACTTAATCGCCTTGACAGCANATCCCTTTTTCGACGCTGGCGTAAATACCGAANAGGCCGCCCGCATCGCCC TTCCACAGATTG</p>

Phase-1 RCT-15	AGGCTTATGANTGATTACGAATTTAATACGACTCACTATAGGAATTTGGCCCTCGAGGCCAAGAATTCGGCAGCGA GGGACACTTGTCTGAGTTTGGTGTTCCTCCGCGCATCTGAGTCCACTTGACCTACCTCTTGGAGCCCTCGGAA GGAGATTACCTGTGAGATTGTCATCCCACTACCTACCTGAGTCCAGTGGAGTGTGATCTCATCTGCTGATCGGCA GGGACGACCCCATGGGCTATGAGAGCAGTCCGAGCGGTGGAGCCAGTGGAGAGTGTGGAGAGATCTCTGCTT TGGTGTGAGCATGTGGCAGAGCCCAATGATGAGTGGAGCAAGCTTCCAAAGATGTGGCGGGAC GACCGTGAGCAGTTCTACAAGATTGCCAAGCAGATCTGACAGAACTCTCTGGGGCTCTGANGCTACAGCCGTGTGC ACACTGAGCAGTCCAGTCTCTCTGAGAGCCAGTGGCGAGATCTGCTTCCCAACCAACACAGAGGAGCTGC AGAGCCTCGGCCCATTTTCTTCTTTCACCCACAGAGCAGCTCCCTGAGATCATGACTGGATGAATGAC AGCTACTGCACCTGCAAAANATCTCTGCTGGCTCAGGGANGGTCCAGGCTGTCTCACTACCTCTCCAANCAT GGGCTCANTCTGCTCTCTGANGACATGGG
Phase-1 RCT-152	TCCNAAGTATNTGCCNNATACGACTCACTATAGGAATTTGGCCCTCGAGGCCAAGAATTCGGCAGCGAGATG GGTTTCGGAGACCTGAAACCCCGCCCTCCAGGTCTCAACGCTTACCTGGCGGCAAGAGCTACATTGAGG GGTAGTGCCATCACAAGCCGATGTGGCAGTATTGAAGCAATCTCTGGTCCACCCCTGAGCTGTGTATGCT CTGCGTTGGTATAATCATATCAATCTTACGAAAGAAAGGCCAGCTTCCCGGGAGTGAAGAAATCTTTGGGCAA GTATGGCCCTGTGAGTGGCAGATACCAAGAGTGGAGCAGATGCTAAAGACGATGATGATGATCTCT TCGGATCTGATGAGGAGGAAAGTGAAGCCCAAGAGGCTACGAGAAACGCCCTTGTCTCAGTATGATCAAA GAAAGCTAAAGAGCCCTGAGTTTTCGAAAGTCTTCCATCTTGTAGATGAAGCCCTTGGACGATGAGACAGACA TGACGAAACTTGAGGAGTGTCCGAAAGCATTCAGCGGACGCTTGGTGGGCTCTCTAAATTTGGTTCCAGTG GGATACGGAATTAAGAGCTTCAATACAGTGTAGTTTGAAGATGATAGGTTTGGAAACAGATATGCTCGGAAANVC ANATTACTGCTTTT
Phase-1 RCT-154	ATGACATGATTACGAATTTAATACGACTCACTATAGGAATTTGGCCCTCGAGGCCAAGAATTCGGCAGCGGAG GAACTGGCTCTCTATTTGGTGGAGGCCAATTCACAGCAGGAGTTCAGCCAGCTTACCAAGCTTATACAAATGTAAATAA GCCAGGTGAAGATCCGAGCAAGAAAGACAATGTAGCAGGTGTACCTTACCAAGCTTGTGAACATTACCAAGAGG AACTGACAGCTATGAACCTGCTTACGAGAGTGGGAGCAGTGGCGAACTTAAAGCGAAATATGCGGAAATATGCCAAA GCAGTGAACCTACTGTGGAACCTGCTTCCCTGAGCTCTTGTACTTGTGATGAAGCCATTAAGATTAACCAAC AGCGGTGAATGCTATTGAGCATGTCAATCTCCCGGATTAAGCGCACTTGTCTTATATCATCACAGAACTGGAT GAGAGAGAGCGAGAAATTTCTAGTTAAAGAAATCCAGAGAGAAAGATATCAAGAGAGAAAGCGGAGAA GGACTTGAAGCGCGGAGAGAGCTGAGAAAGTGTAGGCGCCGCTCTCTGGCGGAAANAGAGACGANGAC CTGCTGTTGAGTACTGCCCCCTGCTCCTTCAAGCTGAGCATTTAACTCATGGCGAGGNTCGGTATGTGAGGT ATT
Phase-1 RCT-162	ATGACATGATTACGAATTTAATACGACTCACTATAGGAATTTGGCCCTCGAGGCCAAGAATTCGGCAGCGAGAAATTT AAGCATATTAGTCAGCGAGAGCTTCGGCGAGCAGAGTGGAGTGGAGTGGCGGTGGGTGTGTACAGCTGG ACGAGCTGTTGAGCAGGAACGTAAATGTTCCGACAGCATGACCAAGAGAGGATTTGCTTGGCTGATGCTGCAC CAAACCATCCAAACAGATCCACTTACTACGAGCTTCCGCTAGTGTGACCCGTGAAGTACAGCCAGCCAGCCCT CTCAGCCCTGCTTACGTCAGGAGGAGGCTGCTGCAATTCAGCTGCTCTTCTCCGTTCACTCTGTTTATTCACCAAC CTTAGTTTCTTCTTACCATCCATGTTTGGCTCTGTTTGGCTTATCAGAGGGTCTCTGCTTCTTCTGCTCCTC TCCATAGTCAGTGTGCTGGGTGAAGTCAAGTTTACTCAGCTTGCCTTACCTCCCAAAATAACAGGTTTGTAA ATAAAATTTTGAACAAGATAAAAAAATAAAAAAATAAAATTCGCGCGCAAGCTTATCTCTTTAGNGANGG TTAATTTTACTTGGCACTGGCCCTGCTTTTACAAGCTGCTGGAGTGGGAAAAACCTGGCGGTATCCCAACTTAATGCG CTTGC
Phase-1 RCT-164	NNCNAATATGACATGATTACGAATTTAATACGACTCACTATAGGAATTTGGCCCTCGAGGCCAAGAATTCGGCAG GAGGATCTTACTGCCAGTGTCTGCGCATTCGAAAGAGAGCTAGACTATGGTCTAATGTTCAAGGATGTGGATG GACAGACTGTGGAAATAGTGAAACTGTTCTCCGCTGGAGGAGTAGGTTAGGTTAGGACCTTTGCAAGTGTGCAAGTG GGGTGACGACACCAAGCAAGCTCTCTCGATAAATAACAGTATACATCCCAACAACTAAACACA GACTACCTCTCCCTTACCATCTGTAAGTGTGAGGTTTAAGAGGTGTGTGTTGTTTAACTTTTGGAGA TGGTTTTTATTATAAATTAAGCCAGACATTTGAAGTGACTGTTCTTATAGTGTCCCAAGCTCTACTAAGTGGG GCCACCTTCTAGTTTCTAGTGTGACTCTGCAATCCATGTTTGTGTTGGAGCCTGAGTTTGGGCTTTAAAA TACAGATGAGATCAATTTTATCCGACTTCAATGAGTATCCATCTCTCGAGAAAAANCTGATTTCTGATGATGACC TTGTACTATGACC

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Phase-1 RCT-18	<p>TTATGACATGATTACGAAATTAATACGACTCACTATAGGGAATTTGGCCCTCGAGGCCAAGAAATTCGGCAGCAGAGGAAG TTATCGCCCTGGGAATGGCTGCCCAAAAGTAAATCAATTTCTGGGAAGCAGAGATTAATTCACATCCCAAGCTCCAGTGA CTACTGCCAGATGTTACCAAGATTAATAATTTGTCGGAAGCAGAGATTAATTCACATCCCAAGCTCCAGTGA GTAAGAAAAGAGCTGCCCTGAAGCCACTGTACCCCAAAAGAACCTGCACCCCTTTCTAATCCCTGCTCGGAAATCTTAG TGTTACGTTCTTAGTTGAAGAAATTCGAAGAAATTAATTCCTCTACAAACAGCGCTGCTAGTATAAAGAAAGAAATATC CTGCAGTCTGAGAGGAGACACTCGAGCTCTCTCCCACTACTCAACCATTAATCTGTTCTTAAGSGAGGATATTTT CGAGCAGGCATTTAGTGACAAGCCACTTTGTAATAGACCTGTGTTTAGTCTTTAAATCTCTCTAGACCTTAGAGGAAT AAAAGCATACATGTGCAATCTGAACCATAGCTCTACTTAACAAGAGGTTTAGAGTAGGCATTCAGTTAGTTTGCACC CTTGCAAAATCAGGCTTCAGAAATAGTTTCCAGAAAGTCCCTTAAGAACGACGCATTACAGCCTAAGGNGANGC AGAGCAGGCTCCNTTAGAGAAATCTCTGGAGGGAATTAATGNTN</p> <p>TCTATGACATGATTACGAAATTAATACGACTCACTATAGGGAATTTGGCCCTCGAGGCCAAGAAATTCGGCAGCAGGAGGT GGTGCCAAAGTTTCAACGCCTCGAGCTCTATTACCCAGCGGCTCAAGAGTCTAGTGCTGTGTTAGTCGAGAGCTTGACA GAGCGTGCCAAAGGACTTCAGCCTCATCTCTGGACGATGATACAGAGTCTCAAGTGCTCTGAGCGAGATACACAG CTGCTGTAGAAAGCCAAAGTGGCCCCAGCAGGAAGCCCAAGAGGCCCCAGTTTTGGTGAGAAAGCAAGCAGGA ACAACGACAGAAGATTGTCGAGGCTGAGGGGAGGCGGAGGCTGTCTAAGATGCTGTGGAGAAAGCACTGAAGCAAGAA TCCTGCTATACAGCTCCGAAGATCCGGGCTGCCAGAAATCTCTAAACGATCGCCACATCAAGAACCCGGA TCTATCTCACAGCTGACAACTTTGTGCTGAATCTGACGAGTTACTCGGGGAAGTACAGCCTCATTAAG GGTAAGAAGTGAGTGGACATCAAGAACCCCAACCCAGAGAGTGGCACATCTCCAGTTTGGAGGGGCCCA GCTTAGGGGGTCAAGCATCCCCANCCCTGACCCCAAGCATCATNGATGGATTTCTCTGTATCTCTCTCTCTGGGAT TAANGAACTGAAGAC</p> <p>TATGACATGATTACGAAATTAATACGACTCACTATAGGGAATTTGGCCCTCGAGGCCAAGAAATTCGGCAGCAGGCTGA ACATCTACGTGCCACCGCTGGCTGCGCTACCCAGCAGACATCTGTAAGGACTACAGGAATTCGCTCTGCTGGTT TTGGAGCAGCTGCAAAATCTCCATGACCGTTAGATACAGCAGGATGGCAGATAGCAAGCGGAGCTCGATGAG GGCGGTTATGGTGATGAAGATGAATACTATGAAGTGAAGCGATGATGAGGAATACCATTCAAATGTTTCATC TGTGCCAAACCTTCAGAAATCCGGTTGTACTAAGTGAATCAATTTCTCGAGACGCTGTGCTGAGCAATTTTC GCAACCACTCCACGGTCTATGTTGTGAGCAACAGACCCACTGGGGTTTCTGCTGCAAGCAAGATGATGCTTAA CTGGAAATACCGAAAGCGGAAGGTGGTACTCTTAACACTCTCAGAGACCCCGATGGAATCTAATGCGCTTACTT AGATTTTGTCAATGTCAATCTCAAGTACTTTTGTGTCACCTCAACCAAGCAACCGTAAATGAAGAAATA TTAAGTTTTCTAAGAAATATCCAAGTTTTGTATATATGACAGTGTCTACAGATGGGAA</p>
Phase-1 RCT-181	<p>TATGACATGATTACGAAATTAATACGACTCACTATAGGGAATTTGGCCCTCGAGGCCAAGAAATTCGGCAGCAGGCTGA ACATCTACGTGCCACCGCTGGCTGCGCTACCCAGCAGACATCTGTAAGGACTACAGGAATTCGCTCTGCTGGTT TTGGAGCAGCTGCAAAATCTCCATGACCGTTAGATACAGCAGGATGGCAGATAGCAAGCGGAGCTCGATGAG GGCGGTTATGGTGATGAAGATGAATACTATGAAGTGAAGCGATGATGAGGAATACCATTCAAATGTTTCATC TGTGCCAAACCTTCAGAAATCCGGTTGTACTAAGTGAATCAATTTCTCGAGACGCTGTGCTGAGCAATTTTC GCAACCACTCCACGGTCTATGTTGTGAGCAACAGACCCACTGGGGTTTCTGCTGCAAGCAAGATGATGCTTAA CTGGAAATACCGAAAGCGGAAGGTGGTACTCTTAACACTCTCAGAGACCCCGATGGAATCTAATGCGCTTACTT AGATTTTGTCAATGTCAATCTCAAGTACTTTTGTGTCACCTCAACCAAGCAACCGTAAATGAAGAAATA TTAAGTTTTCTAAGAAATATCCAAGTTTTGTATATATGACAGTGTCTACAGATGGGAA</p>
Phase-1 RCT-182	<p>TATGACATGATTACGAAATTAATACGACTCACTATAGGGAATTTGGCCCTCGAGGCCAAGAAATTCGGCAGCAGGCTGA AATGTCTCCAGCCAGCCCTCCAGCGTGCTGCACTGACCAACCATACCGCTACTGTTCTCCACCAAGGCTCTTAGACAT GTTGACCAAGGTGATGCGCTCGCTGAGCTTGCCGCCACACAGATGGCGGTGATGATGAGTAAACCCACAGTAGTGATG ACACCATGGCCCGGCCAAGCTGGAGTGACCCGACAAAAGCTAAGGTGCTGGAATCGTATCCCACTTGGCAAGT TTGCTGAGGTGGAGAAAGTGGTANACACATCTCTCTGCTGAGCAAGCAAGATGACACTGCTGAGCAAGTCTGCT TTGGCAGTGGATGGGGCTCTCGCTGCTACCTAAGCCCTCCCTCAACTACTGCTCAACTGCTGTCAGAAACATCGT GCCCTCATCCCTCCAAATAAGCTCTCTGCCAGCCTGTGTGCTGATTTCCACCCCNANAAAAAATTCACANNA ANANANAAAAAAGTTTGGCGGCCGCAAGCTTATTCCTTTAGTGAGGGTTAAATTTAGCTTGGCAGTGGCCGNC GTTTTACAAGCTCGTGACTGGGAAAACCTGGCGTTACCCCACTTAATCGCCCTGCGAGCANATCCCCCTTTGCGC</p>
Phase-1 RCT-185	<p>NCTATGACATGATTACGAAATTAATACGACTCACTATAGGGAATTTGGCCCTCGAGGCCAAGAAATTCGGCAGCAGGCTGA AATTTAGCTCCAGCAGCAGCTGCTGGAAGAGGACTGGAAAAGCGGGGTGTAACATCAACAAATGGGAG GAAGCGAAATGCTTGGCTGCTGATCAAACTGGAAGCCCAAGCGGTAAGTTGTAGCGGATGGTCCAGTCCCAAT CTGAAGCAAGGGCTCAGCAGGAGCCTCAGGAATCCAGTGCAGTGAAGATAGCAGACGGCCGAGGACTCCCGC CTGTACTTCTTCCCTGGCGATTGCTTCTCAGGCTCTCAATTCAAATAGCCCTGGCAGGGTTTCATCTTACTT CCTGTACAGCGTGGCGTACCCACATATGGCCCTCCCAAGGCTTTCAACTCCAGCTTAATAATGCTTCTTCC AAAAAANAANAAGTTTGGCGGCCGCAAGCTTATTCCTTTAGTGAGGGTTAATTTAGCTTGGCA CTGGCCGCTGTTTTACAACTGTGACTGGGAAAACCCCTGGCGTTACCAACTTTCGCGCATCCCNNTN CTTCTGCCAGCTGGCGGNAATAANCGAANAAGNCCCTCCCAACCTTTCGCGCTTTCGAGCAGCATCCCC</p>

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Phase-1 RCT-33	TTCCNAGGCATGATTACCAATTAATACGACTCATAAGGGAATTTGGCCCTCGAGGCCAAGAAATCGGCACGAGG GGAATATCCAGGACAAATCAAGTGGGAGCCCTGTACCTCTGAGCTAGTGAATGGAACTGTGCTTCCGGA CAACAGATGCTCTTAATAAAAAAAGTTTAAAACTGACACCGCTGAAATGTTCTTACGCTTATCTTTGGA TCTGTGGTTCCAAAGTTCTCTCTTTCAGATTTCTTCTGTTTCTGAGTGTCTTGGGGCCAGCAGGAAAGCAGGGA AATACGGTCTGGGGAATTTAGGCCCATTAAGTTTCTTGAAGATGAAGGATATCACTACGCTTGTATTAATTA TGGAGTAATTTTCTATTTCGGCATTCACCTTGCAGACAGCAGATGTCGCTATCTCTAGCCTTCTTTGGGAAAG AGGAGAAAAAGGAGGAGCAGCTGTGAAGCCAGAAATGTTCCAGAAATGTTTGTACCCCTGGACATGGTGGCTA CAATGGAAATTAATACTCTCCCAAGTAAAGCTGGAATGACGCAATTCATCTTCTCGGCCCCAGGCTTTGGAA AGGTTTAAACGAGCAATTCGGAAGATACAAATGTTCCATAGATCN ACTAANNAANGCTNATGACNTGNACGAATTTAATACGACTCATAAGGAAATTTGNGCCCTCGAGGCCAAGA ATTGGCAGAGGCAAAAGAACTACAATCTAGATTCGCTGAAATATACAGACTCAGAGAAATATTAGTTTCTCTG AAAAGGAAAACTTTTCCNTCTATGTACACCAAGGCTCTGCTCAATGCTGCTTCCATACACCTGTCTGACCTCT GCTGAGAACAGCTGCTCAGTGCAGCCACAGGTTTCCGCCCTCTCAAGTTTCTGCTAGCAGATGGCAGACTGTCT TCTAACAGCCATTCATTTTCAATTTCCAGATTTTCCAGGGGAATGCTGCACTGCTGCTTCTGTTATAAACTTACA AATCAATCATGAAATGCNCTAATTTTGTGAATCAGGACCTTAAGTGTATTTGNAATAATATTTGTTTCATAGATTG CTTAGGTTTGTATTCTTTTAAATGTTAACTGNAATTAACACTGTAAGTAACTGGAAGTAAAGTAAAGC CAAGGCTTTACAGATAAAAAATTAATTTACTGNAATGNTAAATTTTGGAAAGATGGCAATTAAGCCCATTTTCTAG GCTTAAAGCCTTTTAAACCAACCNNTANTCATCTACACCTCNCNCTCAAGNNGTGGGGCCCCCCCCANANCCTTTAT TTCCCTTTNANGAGGGGTTAAATTTT
Phase-1 RCT-34	TTATGACATGATTAGGAATTAATACGAGTCACTATAGGGAATTTGGCCCTCGAGGCCAAGAAATCGGCACGAGGCG GGCAGGGGAGCGTCCCCACGGAGCTGTGGCCGAACTACCTGTTTAGAACGATCCAAAGAAATGGCAGGA ATGCACTTCACTGATCTCTTCTAGCCCTGTCTCAGATCTCTCACAATGAATGCTACCCGCAAACTTTATAGTA CTCAATGGCAGACATGCTCTCTCCCAACGAACGGTTGGCTGGAGGACTCTAACATGCCCAACTGTGCACACCT CTCTTTTAGAATTAACCTCAAGGCTCTCTCAGCTGAGTGAATGCTGATTCCACCAAGAGATCTCCAGGGTTT GCAGGGAGTTTAAAGTCAATGTATTTCAATATGAGCTTAAGGAGAAATGACACAAATTTAGTCTGCTCTCTAT ATACACACCTATGAGCAATAAAATGACACTTTTCCGAAAAAATAAAAAAATAAAAAAAGGTTGTGGCG GCCGACGCTTATCTCCCTTAGNAGGGTTAATTTTACTTGGCACTGGCCGCTGTTTTTACAACGCTGTGGACTGGAA AACCTGSGCTTACCCAACTTAATCCCTTGCAGCN
Phase-1 RCT-35	TTATGACATGATTAGGAATTAATACGAGTCACTATAGGGAATTTGGCCCTCGAGGCCAAGAAATCGGCACGAGGCG CACCCCTCCCAATGATTATTTGACATCTGCTCTGTGGCAGACAGATAGATGCTAGTTCATTTTTTTT ATGGAGAGGCTGTTTGGCCCTGTTTCACTCCTCTGCTCCAGACTCCTGAAATTTCTTAGCAACTCTCTGAGTG GAAAGGAAGCTGTGAGTACAGGAGTGGGACTTTAGAGGTCCTTCCATTCAAAATACCAAGAGCAGAGATAACCCCAACTTCCA GGGAGTTTAAACCTTGGAAAGGAATGGCTTTTCCATTCAAAATACCAAGAGCAGAGATAACCCCAACTTCCA AAAGCTGTATTCTACTAATGGGAAAGGAGTGGCTTGGCTCTCTCAGACACTCTCTGAGCCTCCCTGGCCCTC TGCAATGACTCCAGATATTAAGAAATAAATGTTGCTGAGAACTCTTTTCTCTTCCATGAGTGTGATGATAGCC ATTCTGTTTAAACAATTTAGTACTGGGTGAATAGTGTGTTGCCCATTCATAGGCCAGGTAGTATTCT TACAACCTGGGAGCCGAGCATGACCAAGACACCCAGATTCCTGCTCCCAAGGGGTATGTANGGAA
Phase-1 RCT-36	TNATGACATGATTAGGAATTTAATACGACTCATAAGGGAATTTGGCCCTCGAGGCCAAGAAATCGGCACGAGGCT CCTTCCCTATCAAGCCAGATGCTTGAAGCCCATGAAGAGACTCTGAAGAGAGGAGAAAGGAGAAACAGCCTCA AGCCCCATCTGGAATCTCTGCTGCTGCTCAGCCCCGTTCTTCTGGCTGTTGAGATCGATGAGCTGTCTGCC TTCCAATTGAGTACATATCACTCTGAGTATGCCACTAGATGGGGTGGAGTGCAGAGGCTCGGACCCACGCG CCGACCCCTCCCTCACACACTTCTCTGCTGCTAGTAAATGCCAGAGCTTCCATCCCAAGAGTCCAGGCTCAGG CATGGCTATCAGTTGGCTCTGAGGTTGATTGACATCTCAGATGATTAGAAATGGCAAGCAACCTTGGTGA TAACCTGGTGTCTAACTGTACTTACGTTTACGTTAGAGAGGAGCCCAAGGCTGTGCGAGTACGCGC AGGATATTGAACAGTCAATGCTTGGCTTTCAAGGCGATTATCGCTTAAAGGCTTAAATATTAGTAAGGCACTTTA TAACGAGCATAGTATGATCAAACTACTGGAGGCCCAAGGCTAGAACGCTTCTTACCTTCTCTCTAGNTA CATTACGACAAACATAATCNCNANCTCAGGGGAAAACTTCTGCTATCAAGTA
Phase-1 RCT-37	TTATGACATGATTAGGAATTTAATACGACTCATAAGGGAATTTGGCCCTCGAGGCCAAGAAATCGGCACGAGGCG CACCCCTCCCAATGATTATTTGACATCTGCTCTGTGGCAGACAGATAGATGCTAGTTCATTTTTTTT ATGGAGAGGCTGTTTGGCCCTGTTTCACTCCTCTGCTCCAGACTCCTGAAATTTCTTAGCAACTCTCTGAGTG GAAAGGAAGCTGTGAGTACAGGAGTGGGACTTTAGAGGTCCTTCCATTCAAAATACCAAGAGCAGAGATAACCCCAACTTCCA GGGAGTTTAAACCTTGGAAAGGAATGGCTTTTCCATTCAAAATACCAAGAGCAGAGATAACCCCAACTTCCA AAAGCTGTATTCTACTAATGGGAAAGGAGTGGCTTGGCTCTCTCAGACACTCTCTGAGCCTCCCTGGCCCTC TGCAATGACTCCAGATATTAAGAAATAAATGTTGCTGAGAACTCTTTTCTCTTCCATGAGTGTGATGATAGCC ATTCTGTTTAAACAATTTAGTACTGGGTGAATAGTGTGTTGCCCATTCATAGGCCAGGTAGTATTCT TACAACCTGGGAGCCGAGCATGACCAAGACACCCAGATTCCTGCTCCCAAGGGGTATGTANGGAA
Phase-1 RCT-38	TNATGACATGATTAGGAATTTAATACGACTCATAAGGGAATTTGGCCCTCGAGGCCAAGAAATCGGCACGAGGCT CCTTCCCTATCAAGCCAGATGCTTGAAGCCCATGAAGAGACTCTGAAGAGAGGAGAAAGGAGAAACAGCCTCA AGCCCCATCTGGAATCTCTGCTGCTGCTCAGCCCCGTTCTTCTGGCTGTTGAGATCGATGAGCTGTCTGCC TTCCAATTGAGTACATATCACTCTGAGTATGCCACTAGATGGGGTGGAGTGCAGAGGCTCGGACCCACGCG CCGACCCCTCCCTCACACACTTCTCTGCTGCTAGTAAATGCCAGAGCTTCCATCCCAAGAGTCCAGGCTCAGG CATGGCTATCAGTTGGCTCTGAGGTTGATTGACATCTCAGATGATTAGAAATGGCAAGCAACCTTGGTGA TAACCTGGTGTCTAACTGTACTTACGTTTACGTTAGAGAGGAGCCCAAGGCTGTGCGAGTACGCGC AGGATATTGAACAGTCAATGCTTGGCTTTCAAGGCGATTATCGCTTAAAGGCTTAAATATTAGTAAGGCACTTTA TAACGAGCATAGTATGATCAAACTACTGGAGGCCCAAGGCTAGAACGCTTCTTACCTTCTCTCTAGNTA CATTACGACAAACATAATCNCNANCTCAGGGGAAAACTTCTGCTATCAAGTA

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PTEN/MMAC-1	AF017185		<p> GGCAATTGGGCGCTCTAGATGTCATGCTCGAGCGGGCGCCAGTGTGATGGAATCTCGAAGATTCGCCCTTATCGCG GGATCCCTATTCCAAATGTTCAAGTGGCGGAACCTTGCAATCCCCAGTTTGCTGCCAGCTTAAAGGAGTCTAC TCCTCCAACTCAGGACCCAGCGCGGGAGGACAGCTCATCTGACTTTGAGTTCCTCCAGCCATTCGCTGTGCTGGG TGACATCAAAAGTAGTGTCTCCACAAACAGAACAGATGCTCAAAAGGACAAAATGTTTACCTTTGGGTAATAACG TTCTTCATACAGGACAGAGGAAACCTCAGAAAAGTGGAAATCTTGATCAGTGGATCTTGTGATCAGTAACTGATAGCAT TGATGATAGAGCGTGGGATAATGACAAAGGATATCTCGTGTCACTCCCTGACAAATATGATCTTGACAAGCAAAAC AAAGCAAGGCCAACCGATATCTCTCCAAATTTTAAAGTGAATATATACTTTACAAAACAGTAGAGGAACCATCA ATCCAGAGGCTACAAAGCTTGGCAAGGGCGAATCCAGCACACTGGCGCGCTTACTAGTGGATCCGAGCTCGGTA CCAGCTTGATGTCATAGCTTGAGTATCTATAGTGTACCTAAATAGCTTGGCGTAACTCATGGTTCATAGCTGGTTCCT </p>
Pyruvate kinase, muscle	M24361		<p> TATGACATGATTACGAATTTAATAGCACTCATTAGGGAATTTGGCCCTCGAGGCCCAAGAAATCGGCACAGGCGCG ATGCAGCACCTGATTTGCCGAGAGCGAGGCTGCCATCTACCATCTTGAGTTATTCGAGAGAACTCCGCCGCGCTGG CGCCCATTTACGCGACCCACAGAGCTCGCGCGGTGGCTGAGGCGCTCTTCAAGTGTGCTGCGAGTGGGG CCATTTATCGTCTCAACCAAGCTGGCAGAGTGTCTACCAAGTGGCCCGGTACCGCCCAAGGGCTCCTATCAATGCT GTGACAGCAATCCCGACAGACCGCCGAGCCATCTGACCGTGTGCTTCCCTGTGCTGAGGATGCGCG TACTGATGCCCTGGCTGAGGACGTTGATCTTGTGCTGTAACCTTGGCCATGAATTTGGCAAGGGCGCAAGCTCTTTC AAGAAAGGAGATGTGGTCAATTTGCTGCTGACTGGTGGCCCTGGCTGTGCTTCCACCAACACATGCGTGTANTGC CTGTACCATGATGATCCTGTGGAGCTCTCTTCTAACCCCTGTCCCTCCCTCTATCTTCTTAAAGGCAACA CGCTTGATGTGCTCACTGTGGGNCATAATGTGGCGCTGTGGCGCTGGGACACACAGCAAAAAATAATGNCCTCGAA </p>
Ref-1	D44495		<p> GMAATGCTCCACNAATAAANGATGNAACNTAANNANAATTTAGCAANNAATTAANNNGNCNTNGANNNNNA NANNNNNTCCAGTGNNGATGGAAATTTNTGCANAATNTCCGCCNTTAATCGNGGGATCCCGAANAACCCCAAGT CCGAANCAGAAACCAAAANNATAAGGGGNCNCAANAATAATTAAGAGGNCNCAAGAAAGGGCCCT TGTGCTGATGAGGACCCNTCCAAGTTCAAGAAACGTCAGCCAGTGCACAAATCTTGCCACACTCAAAATATGCT CCTGGAAATNGGATGGCTTCGAGCCCTGGATTAAGAAAGGCTTGGATTTGGTAAAGGAAGCAACACAGAT NTTGGCTCCAAGAGACCAATGCTCAGAGAACAGACTTCGCGCTGAATCTCAAGAGCTGCGCTGACTCACCC ATCAGTACTGTGTCAGCCCATCAGAAAGAGATATAGTGTGTGGCCCTACTTTCCGCCCAATGCCGCTCAAG TCTCTTATGGCATTTGGTAGAGAAACATGATGAAGAGGCGCGGTGATTTGGCTGAAATTTGAGTCCCTTATCTTGG TAACAGCTATGTTCCGAGCGAGGAAGGGCTCTGGTAAGACTGGAGTACGACGCGATGGAGTGAAGSCCTTTCAG AAAGTTCTAAAGGACTTGGCTTCCCGGNAACATCTTGTGCTGNTGNAANGNANTTAANNAANCAAT </p>
Retinol dehydrogenase type III	U33501		<p> GNNNNNCTATGACATGATTACGAATTTAATAGGACTCATTATAGGGAATTTGGCCCTCGAGGCCAAGAAATTCGGCAC GAGGCGCTTCTAGACTCCCTCAGGAGGAGCTCACCCTACTTTGGGGTGAAGGTGCTATATAGAGCTGTGGGG TTCAAGACCAATGTCACTAATATGGAGAGCTATCAGACAACTGTAAGAGCTGTGGACACGCCATCAGAGAGGT CAAGGAGATCTACGGCGAGAGTTTCGGGACTCTATATGAAGCAATGGAGTCTGCTGGTGAACATGTGCTCAGGG GACCTGTCTGTGAACCGACTCGGAGCAGCCCTGACTTCGTGACCTTCGACCCCTGACACCGGTACTCAGCTGGTTG GGATGCCAAGTTCTTACCTCCCATGAGTACCTTCCCACTTTCTTCGAGTCCGCTAATCTACTTGGGCTCTGT AAAGCCCTGCCCGAGCCCTGTGAATCTGCACATGTGTGCAGACTTGGGAAGTAAAGCGGGGTGGAGGAGATAACAA TGTGGGGTCCATTGTTCAACCATCTCATTAATAATTTCTGCTTCCGTAATAAAAAAAGGAAAAAAGAAAAA GTGTGGCGCGCGCAAGCTTATT </p>
Ribosomal protein L13A	X68282		<p> GGGAATTTGGCCCTCTAGATGCAATCTCGAGCGCGCGCAGTGTGATGGATATCTGCAAGAAATTCGCCCTTCGCGGAA TTCATTTGTGGCCAGCAGGTACTGCTGGCGCGAAAGGTGGTGGTTGTACGCTGTGAGGGCATCAACATTTCTCGGAA ATTTCTCAGAAACAAATTAAGTATCTGGCCCTTTCTCCGAAAGCGGATGAACACCAACCCGCTCGAGGCCCTTACC ACTTCCGAGCCCAAGCCCATTTTGGCGACTGTGCGACACTGTCCGACAGTGTGCGCAACAGCAAGAGCGGCGAGGC TGCCCTGGAACCGCTCAAGGTGTGGATGGATCCCTCCACCTATGACAAAGAAAAAGCGGATGGTGGTCCCTGT GCCCTCAAGTTGTGCGGCTGAAGCCCTACCAAGAAAGTTTGTCTACTGGGCGCTGTGGCTCATGAGGTGGGGTGA AGTACCAGGCAGTACAGCTACTCTGAGGAGAAACCGAAAGGAAAGCAAGATCATTAACCGGAAGAAAGCA GCTCTTGAGGCTAAGGAAACAGCGCAAGAAAGATGTGAGAAAAGCTGGCCAGATTTCCAGCACACTGGCG GCCGNTACTAGTGGATCCGAGCTCGGTACCAACTTGAATGATGCTGATGCTTGAATTT </p>

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T-cell cyclophilin	M19533		GANANNVCAANNANGNNANNGAGNNNGNNNNNNNNNNCCCTCCAGTGTGATGGGATATCTGCGAGAATTCGGCCCTT ATCGGGATCCCTCTTGCGAGCTGTTTCGAGNCAAGTTTCCAAAGCAGAAATCTTCGCTGTTGAGCACTG GGGAGAAAGGATTGGCATATAAGGGTTCCCTCTTACAGAAATATTCAGAGGATTCATGTCGCGGTTGGACTT CACAGCCATAATGGCACTGGTGGCAAGTCATCTACGGAGAGAAATTTGAGSATGAGAACTTCATCTGGAAGCATA CAGTCTCTGGCATTTGTCATGCAAAATCTGGACCAACAAAGTGGTCCAGTTTATCTGCACTGCGCAAGA CTGAGTGGCTGGATGGCAAGCATGTGGTCTTTGGGAAGGTGAAAGAGGATGAGCATGTGGGAAGCCATGGAGGG TTTTGGGTCAGGAATGGCAAGACCAAGAGATCACCATCTCCGACTGGGACAACCTAAATTTCTTTGACTGTGC GGGCATTTTACCCCATCAAAACCATTCCTTCTGTGTGCTCAGGAGAGACACCCCAACCCANNNNNNNNATNA
Thymidylate synthase	L12138		TTGGGGAATTTGGGCCCTCTAGATGATGCTCGAGGGCGCGGAGTGTGATGGATATCTGCGAGAATTCGCCCTTCGC GGGATCCGACAGGAGGAGACCTTGGGCCAGTTTATGGATTCAGTGGAGACATTTTGAGCACTACAAAGATAT GGATCAGATTACTCGGGTCAGGATGACAGGATGACCAAGTGTGACAAATGATTTGACACCATCAAAACCAACCCCGATGACA GAAATCATCATGTGTGCTGGAAACCAAAAGATCTCCCTGTGGCATGATTTGACAGCTGCGCTCTTGCCATGCCCCCTGTCAAT TTATGTGGTGAATGGGGAGCTGCTTGCAGCTTTACCAAGCGTACGAGATATGGGTGTGGTGTGCCCCCTTCAAC ATTGCAGCTATGCTCTGCTGACCTACATGATGGACATATCACGGGCGCTGACCGGGGTGATTTGTCCATACCTTTG GGAGATGCACACATTTATCTGAATCATATGAGCCACTGAAATTCAGCTACGGGAGCAACAAAGAGACTTTCCCAAG CTCAGAACTCTCCGAAAAGTTGAGACAAATCGAAAGCTTGGCCAAAGGGCGAAATCCAGCACACTGGCGGCCGTACTACTA GTGGATCCGACTCGGTACCAAGCTTGATGTCATAGCTTGAGTATTTCTATAGTGNCACTTAAATAGCTTGN
Thymosin beta-10	M17698		NTTGTGGAAATGTGAGCGGATACCAATTTACACAGGAAACAGTTATGCCATGATTACGCCAAGCTATTIAGGTGAC ACTATAGAACTCAAGCTATGCATCAAGCTTGTGACGAGCTGGATCCACTCAAGTCTGAGCGCGGCTGCTGCTGGTGGG ATTGCCCCCTCGCGGATCCGAGTACTGGAGCGGAGCTCGAACGAGAAATCCACGAGTTGTAAGTAAATGGCA GACAGCGGACATGGGGAAATCGCCAGCTTCGATAGGCCAAGCTGAGAAACACCGGGAGCGAGGAGAAGAAC ACCTTCGGACCAAGAGACCAATGAAACAGAAAGAGGAGTGAATCTCTTAAAGCTAGGAAGATTTCCGCCAC CCACCCCTTCACTCCGAGAACCCCTCGTGTGATGTGGAGGAAGCCACCTCGAAGATGGACGCGACCAACAGCT GCACTGTAAACCGGGGCACTCCGCGCGATGCAACCGCGCTGCTGTGAAGGGGACCCCGCCCACTAATCGG ACTGCCAAATTTACCGGGTTTCCGAGGATATTATAGCTTGTGCCAAAGGGCGAAATTTCTGCAGATATCCATCACACTG CGCGCGCTCGAGCATGCATCTAGAGGGCCCAATTCACNG
Transthyretin	X14876		TAGGTGNCATATAGAACTCAAGCTATGCAATGCTGGATCGGACTGGATCCACTAGTAACGGCGCCCAAGT GTGCTGGAAATTCGCGCTTATCGGGATCTTCAAGGCTCTGATGCTCAAGTCTGAGTCTGCGAGCGCTCCGAGCGCAG CCTGCTGCGATGTGGCGGTGAAAGTGTTCAAAAGACTTCAGACGGAGCTGGAGCCGTTTGCTCTGGGGAAGA CCCGGAGTCTGGAGAGCTGCAGGGCTCACACAGATGAGAAGTTACGGAAGGGTGTACAGGGTAGAAGCTGG ACACAAATCTACTGGAAGCTTTGGCATTTGCCATTCGATTAATACGACGAGTGTTCACAGCCAAATGACT CTGGTCACTGCCACTACACCATCGAGCCCTGCTCAGCCGCTACTCTACAGCACCACTGCTGCTGTCAGTAACCC CAGAACTGAGGGAGCCAGCCGAGGAGACCGGATTTGCCAAAGCGATAGTCTTCCATTTGTACTGAAACAGTGT CTTGCTATAAACCGTGTAGCAACTCGGAGATGCGGTAACCGTCTTAAGCTCAAGGGCGAAATTTCTGCAGATA TCATCACCTGGCGCGCTCGAGCATGCATCTAGAGGGGCCAAATTCGC
Tryptophan hydroxylase	X53501		GANNNGGCCCTTAGATGATGCTGAGCGCGGCCAGTGTGATGGATATTCGAGAATTTGCCCTTATCGCGGGA TCCAGGATTGGACACGTGTGCTGACAGCTGTAGCCTTGGCATAAGCAGTTGTATAAATCTTTCACTTACTGTAACA AAGTGTACAGAGACATCAGTTATAAGGAGAAAGTTGTTTGGGTGTATTGCTCTTACAGCTTATAGACGTGCTGCTGTGG TTTAAAGCCAGTGGTGAACCAAGGCATGTAGAGAAATGTGCGAGCAACTTCATAAAGGATGGAAAGAGAAAG TGAAGGGTTTAGAGAAAGAAAGAGAGATGGAATGAGAGAGGGAGAACACACACATGGGTACGCGCACACACA CAGAA GATCCTACAGTACAGTTTAAGAGTTTCAATACAGGGTAAAGACAGAGGGCTCAGAGTTAAGATGACTCGCTGCTCT CCAGAGGACCCCTGCTTTGATTCCACGACCCACACTGTAAAGCTTGGCCAAAAGGGCGAATTCACGACACTGGCGG CCGTTACTAGTATGAGTCCGAGCTCGNCCCAAGCTTGATGATAGCTTTGAGTTCTTATAGTGTACCTTTAAATAGCTT TCGCGAATCATTTGNCAT

Ubiquitin conjugating enzyme (RAD 6 homologue)	M62388	TTGNGAATTGGGGCCCTCTAGATGCATGCTCGAGGGCCCGCCAGTGTGATGATATCTGCAGAAATTCGCCCTTGGCGG GGATCCGTAGGAGGCTCATCGGGATTTCAGAGCATTTGCAAGAGGAGCCACCTTGGGGGTGCTCAGTGTGTTAAACT TGAACAACATCATCGAGTGAACGCGATTAATTTGGACAGAGGAGCACCTTTGAAGATGGTACTTTCATCAATGTGT AGTAATAGAAATTTCTGAAGATATCCAAATAAACCCACCAACCGTTAGTTTTTATCCAAATGTTTATCCAAATGTGT ATGCTGACGGCAGCATATGCTTAGACATCTCGAGACCTGAGAGCCACGCTACGACGCTCTCCCTCATCTTAACT TCAATTCAGTCTCTGTTGGATGAGCCGAATCCAAACAGTCCGGCAATAGCCAGCAGCACAGCTTTTACAGGAATA CAAACGGAGTATGAGAAGAGGGTTTCGGCCATTGTTGAGCAGAGCTGGAATGACTCATATAGACACCTGGTCTGT CCACCTTCCATCGTGTGTAAGCTTGGCCAGGGCGAAATCCAGCACACTGGCGGCTTACTAGTGGATCCGA GCTCGGTACCAAGCTTGATGCATAGCTTGAGTATCTTAGTGACCTAAATAGCTTGGGATA
Uncoupling protein 2	AB006613	NGGGGAATTGGGCCCTCTAGATGCATGCTCGAGCGGGCCGCCAGTGTGATGGATATCTGCAGAAATTCGCCCTTGGCG GAAATTCGTGGCAGGAGCACACAGTGCCTTGGCTGTGGCCCACTACAGATGTGTAAGTGTGTTAAAGTCCGCTTC CAGGCCAGGCCCGGCTGGCGGTGGTTCGGAGATACAGAGCACTGTGAAGCCCTCAAGACCATTTGCACGAGAG GAAAGGATCCGGGCCCTCTGGAAGGGACCTCTCCCAATGTTGCCCGAAATGCCATTTGCACTGAGCTGG TGACCTATGACCTCATCAAGATATCTCTGAAAGCAACCTCTACGACGACCTCCCTTGCCACTTCACTTCTG CCTTCGGGGGGGCTCTGCACACCGCTCATTCCTCCCTCCCAATGATGGTCAAGACGAGATATGAACCTCTGCC TTGGCCAGTACACAGCGCCGCCACTGTGCCCTGACCATGCTCCGAAAGGGGGCCCGAGCCTTCTACAAAG GGTTCATGCGCTTCTCTCCGCTTGGGATCTGGAACGTAAAGCTTGGCCAAAGGGCGAAATCCAGCACACTGGC GGCGTTACTAGTGGATCCGAGCTCGGACCAACTTGATGCATAACTTGAGTATCTATAGTGGCA
Urinary protein 2 precursor	AF198441	CTATGACATGATTACGAATTTAATACGACTCACTATAGGGAAATTTGGCCCTCGAGGCCAAGAAATTCGGCAGGAGGGT TGAAGATCAATCTCACTGCAATGGAAAGCTATCTTGCTGCCACTGGGCTGTCTTGCTCATGAGCTCCCTGTC TAGCTTTCAGAGTCTCAGATGTGAAGCTCGATCTACAGGACTTTGTCGTGTTGGAAGACGTATATGTCAGACTT ATCTGATGAGATTTTGCCCTGGTTGTAGTAACCACTCGAGATGGAAATTTGATATGGAACACGAGCTGTGCTG AGTGATCGGTACGACTGTTGAGCACTGGAAGCTTATATATCAACAACTGTTGCTGACCCACCTTTCTGCAATA TGGTACATCCCTGACTAATTTGATGGAAGGATTTAGTCTCTTATGAGTCTTTGACGTGGAGCTCCAGAA GAAATATCTACTGACCATGTCTGGACACTCACTATGATTTCTACATCGTGTCTTGACTACATGATATATATGTT TTGGGTGATCTGTAATAATTGAAAGCCTTACATATTTTAAATTTGAACTAAACAAAAAATAAAAAAAGTGT GGCG
Voltage-dependent anion channel 2 (Vdac2)	NM_031354	CTATGACATGATTACGAATTTAATACGACTCACTATAGGGAAATTTGGCCCTCGAGGCCAAGAAATTCGGCAGGAGGGT CTCCTTCACTCGCCCTCAGCCCGGGTGGCTCGAGCCAACTTCCAGTAGCGGAGTGGCCCTCAGCTGCGAGCGCG AGCGTGGCGCAGCGCCCTCAGGACACCCGAGATCACTTTCCCGCGACTTCGCCATGGCTGAATGTTGTG TACCGGTATGCCAACGGCCAAATTTGATCCCTCCACCTATGCTGACCTTGGCAAGCTGCCAGAGATATTTCAACA AAGATTTGGTTTGGGTTGTAAGCTGGATGTGAACGAAAGTCATGCGTGGTGGAAATTTTCAACATCTGGCT CATCTAATACAGACACTGTAAGTCAGTGGACCTTGGACCAAGTACAATTTGGTGTGAGTATGGTCTGACTTCA CAGAAATGGAACACTGACACACTCTGGGACGGAGATTGCAATTTGAAGACCAGATTTGTCAAGGTTTGAAGACTG ACCTTTGACACCACTGTTTCAACCAACAGAGAAAGTGTAAATCAAGTCTGCTTACAAAGANGGAATGTATA AACCTTGGCTGTGATGTTGATTTGATTTGCTGGGACCTGCCATCCATGGGTACCGCTNTTGGNTACGGGGGGG GGGGGGGG
Zinc finger protein	AF001417	AGGTGTGNAATGACCGAGGAATCTCAGATTTCTTGAATGACTAAGACTTCACCAATGGGGTCAGAGGTAAACCTTTGG TCGTGGGCGAAAGTTTCNTCCGAATCTGCTGAAGATTCGCTGTGACATCAGATTCAGGCTATTTGCTCTAAGTTAT AATTAAAGCCGGAGCTGATCAGAGAGTCTCTGGGAGCTAGAGAAATCTTCAATTCGATTCCTCTCTCTCC GTCTAGAAATGATTTGGTCCACAGGCTCTCTCTGGTTGCAATTTTATCTCAGAGGCTGACACGTCAGAGGCTCAC TCTGAAGATAGGTTTCAACTCCAGGAGTCTGTTTGCCTTCTCCAGGACGGAGCCGAGAGGAGTAGCC CGTTCTGTGCACAACTGTAGTTCCTGGAAGATGCTACATTTGGGAGCACATCTGCTGGGTTGGAAGACAGT CCCGCTGTGGGAAACAGGAGGTGACGATCAGGAGTGGAGGACGAACTGTTCCCGGAGCGCAGGTTGAA GTTTCATGCAACTGGATGGCTGCAATCGACCGCGGCTCCGCGAGCTCCGCGAGCGCGCGAGGCC CAGCAATATTTGCTCTGCGGAAATCTTGGCCCTCGAGGGCCAAATTCCTTAGTGTGATTCGTAATTCGTAAT CATGTGCATANNNG

Table 34. Expression Data for 6 Hour Timepoint (1)															
Compound-Dose (2)	ANIT 15	ANIT 15	ANIT 15	ANIT 15	ANIT 15	ANIT 15	ANIT 15	ANIT 15	ANIT 15	ANIT 15	ANIT 15	ANIT 15	ANIT 15	ANIT 15	ANIT 15
Animal Number (3)	1641	1642	1643	1651	1652	1653	1654	1655	1656	1657	1658	1659	1660	1661	1662
Liver Toxicity Necrosis Classification (4)	no	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Gene Name (5)	0.7185743	0.9336073	0.8929988	0.8827605	0.7812951	0.9294331	0.985154	1.0788583	1.0081168	1.0519006	1.1473383	1.2465549	1.1727681	1.3356233	1.3356233
Gadd153															
Interferon related developmental regulator															
IFRD1 (PC4)	0.6898839	0.7755275	0.7540798	0.7127763	0.8136663	0.7227162	0.8943311	1.0828478	1.0075552	0.6761732	1.2359542	1.0848298	0.9331386	1.0134275	1.0134275
ID-1	1.2276917	1.2966	1.2033458	1.464322	1.2952479	1.468147	1.107182	1.0950371	1.01164	1.2433068	0.9020668	0.9878841	1.2038897	1.2593217	1.2593217
Insulin-like growth factor binding protein 1															
	1.2149286	1.2517433	0.849152	0.8105241	0.9387315	0.7861077	1.624905	0.9030647	0.8451559	1.0900192	0.978455	0.8919143	0.9329634	1.0453888	1.0453888
NIPK	1.1653209	1.3313817	1.0859087	1.1544943	1.2684283	0.9513855	1.1618098	1.1618098	1.0498691	0.9219275	1.0776528	1.0960306	1.1880271	1.1305571	1.1305571
Phase-1 RCT-50	1.0134555	1.0255734	0.9750375	1.2598153	1.1561269	1.1628666	1.1502093	1.0498691	0.9108583	1.0588776	1.5152891	0.669942	1.1071056	1.1057713	1.1057713
Sarcoplasmic reticulum calcium ATPase															
Phase-1 RCT-207	0.7396581	0.7300929	0.7890976	0.8404832	0.7737302	0.811909	1.0051636	0.8858995	1.0098606	0.7356453	0.9549313	0.9002085	1.137184	1.1231465	1.1231465
Acetyl-CoA carboxylase	1.289143	1.1662071	1.1077025	1.2380215	1.2850202	1.2828368	1.0282483	0.9924706	1.0921209	1.4034077	1.958303	1.3692666	1.1813176	1.3113828	1.3113828
Citrate synthase	1.2387872	1.1087221	1.0561755	1.0629063	0.968681	0.983474	1.0338572	0.9946747	1.0901611	1.0705246	0.9494971	0.905874	0.8981977	0.8990743	0.8990743
Citrate synthase 2	0.9216462	0.754725	0.8318392	0.7312754	0.8803408	0.7271667	1.1044714	0.9508792	0.8724679	0.9591028	1.516148	0.9638328	1.0476373	1.0222765	1.0222765
Glucokinase	0.9829909	0.9807149	0.8488332	0.8631044	0.3740629	0.6822068	0.8567957	1.0948236	1.5476094	0.9257579	0.5621789	0.9273129	0.8981254	0.8265217	0.8265217
Gadd45	0.8634767	0.7835796	1.2540028	0.8263367	0.8540667	0.5859734	1.2413412	0.8108042	0.8448618	0.8928308	1.1119313	1.3372039	1.3245273	1.4109555	1.4109555
Phase-1 RCT-18	0.9808652	1.0350194	0.9587807	1.0463129	0.9864402	0.945038	0.9594232	1.0059595	1.0282006	0.957373	0.9748662	1.0473009	1.001077	0.9757577	0.9757577
3-beta-hydroxysteroid dehydrogenase (HSD3B1)															
Phase-1 RCT-221	1.0688981	1.0014876	0.9632384	0.8352436	0.7861591	0.8678508	1.0936232	1.0432448	1.0801586	1.0658419	0.8712314	1.0014613	0.7063501	0.7752215	0.7752215
Heme oxygenase	1.0449207	1.0287501	0.9411498	0.9503047	0.9419692	0.9646358	0.9743303	1.1178569	1.1038841	1.1093571	1.0788866	1.1596407	1.015261	1.5466703	1.5466703
Cyclin dependent kinase 4	1.0908903	0.8578102	0.8084754	0.794832	0.8409988	0.7580927	1.2285612	1.26232	1.0781766	1.0281449	2.1180346	1.4203475	1.6522803	1.3570095	1.3570095
Phase-1 RCT-75	0.9099755	0.923375	0.983073	0.9999556	0.8867117	0.9782047	0.9523531	1.0218555	0.9387755	0.8680192	0.8259316	0.9589778	1.0314171	1.0068668	1.0068668
Phase-1 RCT-85	1.3928976	0.9574019	1.4720993	1.1336966	1.3571436	1.1690391	0.8948373	1.1647103	1.2587731	1.1566842	1.0223078	1.015826	1.0514078	1.0514078	1.0514078
Cytochrome P450 1A1	1.3233488	1.2809784	1.3219572	1.1647984	1.3021673	1.1629522	1.3819382	1.1425153	1.0306206	1.3208362	1.0988663	1.20215	1.1361784	1.0753907	1.0753907
Paroxisomal multifunctional enzyme type II	3.403472	4.175663	3.1513543	1.3179038	9.773597	3.9355524	0.9577171	0.8820159	0.8567971	1.3976512	0.9843562	0.9543454	1.1943812	1.2198145	1.2198145
DNA topoisomerase I	0.8356373	0.9731294	1.0771408	0.6359808	0.9644716	0.8670697	1.1467946	1.0778381	1.2019639	0.8039252	1.169988	1.0594281	0.8714904	0.8986325	0.8986325
Focal adhesion kinase (pp125FAK)	0.8054658	0.9291925	0.9049191	0.8489508	0.8531781	0.7827807	1.0761061	1.0567739	0.9435328	0.7343188	1	0.9774364	0.4803805	0.5703286	0.5703286
NGF-inducible anti-proliferative putative secreted protein (PC3)	1.0515311	0.9712278	1.0951585	1.0977428	1.0256263	0.8672704	0.9755156	0.9413212	0.8969048	0.9399666	0.9865205	0.9535865	0.9591884	1.0023566	1.0023566
Phase-1 RCT-82	0.6653699	0.9457198	0.9880259	0.9351403	0.9743493	0.885854	1.3307024	1.073774	0.9825605	0.956658	1.114923	0.9335354	0.7367932	0.8152862	0.8152862
Senescence marker protein-30	1.013551	1.0175092	0.9879723	1.0159973	1.0188105	1.0378032	0.9737003	0.9630044	1.0768925	0.9286189	1.0180067	0.9677689	1.021052	1.068598	1.068598
Melanoma-associated antigen ME491	0.5650517	0.9331675	1.2714597	0.6972141	0.7088856	0.5903618	0.9080846	1.0748038	0.9792197	0.6207278	0.4626555	0.90999	0.5696384	0.5276256	0.5276256
Activating transcription factor 3	1.123772	1.1784738	1.2164025	1.503028	0.9342504	1.0693377	1.1366633	0.8162779	0.7222134	1.0494608	0.8858706	1.2314708	0.7085851	0.8886442	0.8886442
Tryptophan hydroxylase	1.452152	1.4229136	1.3566269	1.5028864	1.3285861	1.4855398	1.1027302	0.9054137	1.0205317	1.2999927	1.0627655	0.9805476	1.2899004	1.0307328	1.0307328
Zinc finger protein	0.9645554	0.9297437	0.9538499	0.9363961	0.8669578	0.8897998	1.0071949	1.0600281	1.0854569	0.9482657	0.8546203	0.9942221	0.8289104	1.0033842	1.0033842
c-myc	1.0606091	1.0850496	0.9745781	1.3638867	0.9983352	1.0269728	1.0431397	1.0468896	1.0496228	1.1140525	1.5749687	1.1378806	0.8914579	0.8872826	0.8872826
Cholesterol 7-alpha-hydroxylase (P450 VII)	1.5147784	1.0234506	1.1668878	1.331713	1.2711399	1.1695328	1.0753578	1.0139033	0.9300892	1.4131157	1.585134	1.0761367	1.2891656	1.5202777	1.5202777
Ferritin H-chain	0.9303029	0.9509728	0.5418924	0.8818946	0.6116998	1.2727166	0.8835923	0.871769	1.1785971	0.896948	0.8553781	1.103954	1.2052213	1.0843471	1.0843471
Phase-1 RCT-197	0.6835101	0.6700283	0.8423172	0.870822	0.7071592	0.6641246	0.8805991	1.0051687	0.9027979	0.6666488	0.8452389	0.9041293	0.8913291	0.9314529	0.9314529
Phase-1 RCT-179	0.9466598	0.8484824	0.832247	0.7768484	0.8980972	0.8835461	1.1923697	1.0633507	1.6278094	1.0277888	1.8494008	1.7915419	1.1072408	1.0756879	1.0756879
Argininosuccinate lyase	0.9326868	0.8378596	1.039075	0.9614793	1.0280399	0.8014495	0.8718779	1.075666	1.0227627	0.9912298	1.4609925	1.1311903	0.9943913	0.981828	0.981828
Phase-1 RCT-15	1.015028	0.9775072	0.957975	1.002485	1.2628243	0.9759921	1.3613387	1.1846255	1.0393164	1.3739927	2.1224775	1.502956	1.1832641	1.1794859	1.1794859
Phase-1 RCT-49	1.2056043	1.3548754	1.1052856	1.4339688	1.6688192	1.1163688	1.372859	0.9726391	1.3412305	1.2500868	1.0607688	1.0607688	1.320045	1.2891153	1.2891153
Carbonic anhydrase III	0.9294566	0.9788365	0.9558389	1.1491555	1.02307	1.0143225	0.9257543	0.9660717	0.9643093	0.9078089	1.2817576	1.0872744	1.2430588	1.1278608	1.1278608
	0.4845098	1.079574	0.8744931	0.7832172	0.9679762	1.112431	1.1657006	1.4908164	1.8716093	1	0.1475497	0.4866224	0.258854	0.3691317	0.3691317

Proliferating cell nuclear antigen gene	0.8825166	0.8918008	0.9163802	0.9420029	1.0223718	1.0601866	0.8980906	0.8601744	0.8769133	0.8530337	0.9578324	0.9547153	1.112124	1.1954437
Integrin beta1	1.009435	1.0328991	1.0399166	0.9906036	0.9808045	0.8913259	1.0610689	0.8519325	0.9054252	0.9437878	1.5262783	1.0779074	1.048401	0.8879161
Caspase 6	0.8144714	0.8695206	0.8474238	0.7780047	0.9078218	0.9059883	1.0391469	1.007694	0.8921987	0.8859599	1.0158961	1.0174546	1.1183328	1.1750544
Phase-1 RCT-116	1.1774017	1.3448613	1.0215167	1.1908216	1.1330466	1.1746332	1.2750086	1.153043	0.8717307	1.1790323	1.1324239	1.2059441	1.239121	1.081191
Phase-1 RCT-109	1.0254289	0.9860531	1.0601807	1.0625728	1.0412246	0.9230573	0.8791432	0.9620076	1.0309701	0.9887829	1.1498078	0.9894577	1.129928	1.1585151
Phase-1 RCT-71	1.032324	1.1339133	1.0525227	1.0752836	1.0623491	1.182517	0.8201333	0.8571022	0.8349381	0.9309701	1.0340934	1.1684034	1.0358438	1.117894
Elongation factor-1 alpha	0.876109	0.8442411	0.8653391	0.8343079	0.8516285	0.8428534	1.0510715	1.1261322	0.9616736	0.7631653	0.9606512	0.9494209	0.7079893	0.8838487
Phase-1 RCT-169	0.9582353	0.880698	0.8868892	0.9733278	0.9992086	1.0009189	1.1951162	1.1468896	0.9475765	0.9381145	1.1769083	1.1895924	1.184944	1.2258343
Pyruvate kinase, muscle	0.9535065	0.8753552	0.8683917	0.8328217	0.7706469	0.8373581	1.0575631	0.8987153	0.8854221	1.2158251	1.1927896	1.1927896	1.1927896	1.1927896
Nucleosome assembly protein	0.6089873	0.8987361	0.8813744	0.5589454	0.7303363	0.891077	0.9334246	0.8805699	1.069418	0.5712067	0.6767358	1.2086651	0.9061014	0.8762889
Phase-1 RCT-127	0.9760207	0.9784484	0.9201744	1.0834774	1.1456012	1.1456012	0.9351027	0.9992088	0.9316971	0.8202188	1.4556337	0.7735358	1.1043243	1.3398445
Iron-responsive element-binding protein	0.95496	1.0916806	1.1726447	0.8244378	1.0485252	1.033854	0.8781023	1.0284262	0.9807261	0.9588726	1.029165	1.022861	0.7715236	1.2492876
Phase-1 RCT-72	0.9564911	0.8800318	0.9346035	1.0972357	1.0255792	1.0620791	1.1585289	0.9473144	0.9802647	0.9588726	1.029165	1.022861	0.7715236	1.2492876
Phase-1 RCT-144	0.9853792	0.937196	1.0796523	1.083639	1.2551976	0.9939714	0.8935513	0.9804354	0.9543101	0.9457164	1.5438249	1.0996565	1.1899151	1.1627822
Phase-1 RCT-242	0.9511073	1.081147	0.9887483	1.2816093	1.0942544	1.1550943	0.8935513	0.9804354	0.9543101	0.9457164	1.5438249	1.0996565	1.1899151	1.1627822
17-beta hydroxysteroid dehydrogenase, type 2	0.2012994	0.8053457	0.8683049	0.4131254	0.6416274	0.8495546	0.7874846	0.8143635	0.9906108	0.2391497	0.1929886	1.2884898	0.7408887	0.5177307
Phase-1 RCT-70	1.4160482	1.1079257	1.0468442	0.8174551	1.1199657	1.0359564	1.022524	0.9665679	0.9805142	1.2780778	1.0346018	1.0664095	1.0861219	1.179101
Ribosomal protein L13A	1.0169355	0.8784845	1.0461044	0.611742	0.8838401	0.8373581	0.9043261	0.9832134	0.7693387	0.9555017	1.2161046	1.0157439	1.210838	1.2890812
Cytochrome P450 2E1	1.236674	1.3538622	1.2765596	1.1653274	1.0093058	1.704629	0.7364896	0.8138089	0.7925287	0.8490733	0.5908919	0.7514836	0.9112895	1.0095818
AT-3	0.8897899	0.885324	0.9628465	0.9821184	1.0034171	0.8886837	0.7675028	1.0506384	0.9272199	1.0712005	0.9663564	0.9079777	0.9871599	0.8815535
Phase-1 RCT-270	1.1011877	1.0679487	1.1068181	0.9381476	0.9116659	1.0441352	0.704002	0.9786394	1.0819108	0.9672251	0.984696	0.8591073	1.1567732	1.1476073
Phase-1 RCT-123	0.9355506	1.0066652	0.8724118	1.0092225	1.0079914	1.0441352	0.704002	0.9786394	1.0819108	0.9672251	0.984696	0.8591073	1.1567732	1.1476073
Alpha-2-macroglobulin, sequence 2	0.984683	0.7993588	0.8231666	1.0809472	0.8689137	1.0597713	0.8906028	0.8634469	0.9061285	1.1263669	0.968157	0.899572	0.885006	1.2280865
Matrix metalloproteinase-1	0.7543654	0.7491251	0.7469956	0.7463155	0.7889904	0.7633909	1.0372615	0.9322615	0.9518623	1.0037078	0.998315	0.8920386	0.7480897	1.1547995
Beta-tubulin, class I	1.0952213	1.2097276	1.7881792	1.1133955	1.4442486	1.0395551	0.9839663	1.1029891	0.9777419	0.953758	1.1215174	1.1007712	1.1863842	1.1575985
Phase-1 RCT-161	0.9629833	1.0098064	0.9222848	1.0503281	1.0164492	1.015252	1.400217	1.248987	1.5738437	0.985005	0.5286984	0.7327712	0.4921234	0.7275832
Phase-1 RCT-161	1.2609897	1.2516987	1.293437	1.2637444	1.3685564	1.1688178	1.079549	1.0831653	0.9453098	1.0648377	0.7543777	1.0548734	1.1185955	0.7158955
Stem cell factor	0.7785376	0.8548129	1.1513512	0.8351924	0.6007931	0.6740239	1.0943563	1.1137604	1.0290896	0.726638	0.9732372	0.7115492	0.6766106	0.6766106
Macrophage inflammatory protein-2 alpha	1.050731	0.9662806	0.7755001	1.1097808	1.2300937	0.968158	1.041074	1.142998	0.995675	1.3339353	1.7429882	1.1827828	1.1425744	1.2558816
Thymidylate synthase	0.994112	0.9508652	1.0184784	1.0404687	0.953407	0.9818228	0.9455715	1.169987	0.9232881	0.9444928	0.7866101	0.9548044	0.7892209	0.7302325
C-Jun	1.1578233	1.2684429	1.376932	1.9909544	1.7620658	1.5182893	2.0682418	1.1732258	1.1112821	1.377724	1.4476137	1.6327779	1.1723542	1.1812063
Superoxide dismutase Mn	1.191638	1.1185166	1.158542	1.051313	1.0466814	1.0973539	1.0441002	1.0701905	1.022582	1.0634749	1.2846715	1.1412678	0.943814	1.0953131
Phase-1 RCT-73	0.8896211	1.0080326	1.0021784	0.8007281	0.9510467	0.8591147	0.9783914	1.0393328	0.9016447	1.0413157	1.061457	1.0280035	1.0472503	1.0049616
Macrophage inflammatory protein-1 alpha	1.237433	0.9849516	0.9835461	1.4384342	1.2878778	1.2832083	1.0215358	1.0375714	0.9426705	1.3448884	1.1044588	1.0287099	1.2771738	1.4294727
Phase-1 RCT-214	1.0963717	1.0286255	1.1609334	0.953472	1.0031888	0.9564763	1.1001635	1.169987	0.9232881	0.9444928	0.7866101	0.9548044	0.7892209	0.7302325
NADH-cytochrome b5 reductase	1.1950442	1.2027489	1.180445	1.1633062	1.0699576	1.2800499	0.9218112	0.9184869	1.2695007	1.0918676	0.8755307	0.8003139	0.8233565	0.7699763
Interleukin-1 beta	0.8933691	0.8187771	0.8707685	0.9796415	0.9708717	0.947814	0.9505159	1.0039328	0.9016447	1.0413157	1.061457	1.0280035	1.0472503	1.0049616
NADP-dependent isocitrate dehydrogenase, cytosolic	1.0143814	1.0535113	1.3957092	0.9624125	1.0712388	0.9659266	0.8232184	1.1088023	1.0472747	0.9119698	0.657993	0.8800879	0.8153426	0.8345487
Phase-1 RCT-289	1.1787131	1.118199	1.1143155	1.0494284	1.116709	1.169125	1.0520252	1.0775697	1.3428202	1.1256331	0.7486352	0.9324309	0.7974989	0.7884184
Glutamine synthetase	1.1762499	1.4699069	1.2780528	0.8394649	0.8188794	1.0502946	1.275435	1.0654241	0.8631264	0.9650354	0.7506993	0.9002107	0.4594576	0.6399438
Phase-1 RCT-182	1.1028969	0.9852377	0.9824249	0.8813642	0.8578239	1.2171141	0.9131823	0.8926218	1.1424687	0.9568243	0.5835359	0.7528215	0.8545491	0.8938586
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.1594281	0.9303154	1.1112452	1.0594631	1.1553923	0.977963	1.0831553	1.0487088	0.9624461	1.0787557	1.0814711	1.0445465	0.7004555	0.9100702
Extracellular-signal-regulated kinase 1	0.5491036	1.0574118	0.8905959	0.8068087	1.1582721	1.1473312	1.2304639	0.6675905	0.5497228	0.701839	0.4719838	0.6555744	0.8571992	0.8571992
ErmA	1.0191764	1.0759492	1.0692528	1.0734193	1.03064	0.982335	0.9517204	0.9541177	0.9282832	1.039938	0.874907	1.0325286	0.855744	0.8571992
Phase-1 RCT-78	1.0587994	1.044764	1.0573443	0.9519615	1.0125328	1.0740681	1.1585928	1.202749	1.1721112	1.213186	0.9394142	1.0873504	0.9616714	0.9817502
Phase-1 RCT-212	0.8336432	0.8106638	0.8402128	1.0186192	0.8425325	0.8530802	0.9507755	0.9530802	0.9507755	1.0936751	1.0068878	1.0908882	1.0894178	1.1343453
Phase-1 RCT-168	1.1201595	1.111117	1.1195064	1.0638678	1.0535724	0.9803076	1.0363439	1.0026037	1.0913441	1.0027747	0.9916419	0.7983648	0.6484934	0.7043883
LysM hydrolase	1.030539	1.1117865	1.1065004	0.8620387	0.8845925	0.9162978	0.9459705	0.9805666	0.9951422	0.9527513	0.8757247	0.9750733	0.4567277	0.6147097
Phase-1 RCT-55	1.1767752	0.8761249	1.0162835	1.268858	1.2538329	0.9329485	1.1302994	0.8314361	0.7462573	0.9525211	0.7246615	0.7866244	0.9972466	1.4098879

Table 34

MHC class I antigen RT1.A1(f) alpha-chain	1.9584932	1.8475755	1.7166697	1.6590681	1.6042585	1.449923	1.433592	1.643368	0.9890818	1.8143188	1.4693921	1.5359718	1.2765774	1.0956408
Phase-1 RCT-40	0.8299238	0.8246514	0.9613408	0.7184317	0.7115783	0.7588074	0.8732337	1.168917	1.1055082	0.7467327	0.7141311	0.915378	0.6844335	0.6250631
Cyclin G	0.9861405	1.0574917	1.0137767	0.7868509	0.9781407	1.047667	1.2199423	1.1420199	1.022032	1.2676705	2.8617885	2.9459188	1.204908	1.0808052
Peroxisome proliferator activated receptor gamma	0.9240714	0.8528097	0.9166532	0.9808784	0.8266951	0.8610089	1.1634672	1.0719354	0.9784838	0.9781548	1.0581055	1.0154052	1.2449276	1.1345785
Phase-1 RCT-280	0.9341313	1.1864057	1.0366498	0.9431174	0.9928938	1.0330125	0.7716862	1.0992044	1.0653718	1.1481214	0.4788407	1.2119955	1.0552299	0.9407668
D-dopa-chrome tautomerase	0.9663504	0.8672113	0.9238014	0.86123	0.9134668	0.9512128	0.8304918	0.7970937	1.1284757	0.8745792	0.6180769	0.8395328	0.5432341	0.8098799
Phase-1 RCT-287	0.885182	0.829776	1.0057417	0.7684604	0.9359691	0.8276541	1.0144409	1.0905342	1.106405	0.8173018	1.0597137	0.9243385	0.7745482	0.8412263
Phase-1 RCT-119	0.9507658	0.8301064	0.7305186	0.9339791	0.7619197	1.2791598	0.8959353	1.1908362	1.1802434	1.1453332	0.7780972	0.8998249	1.2396293	1.1238561
Thioredoxin-1 (Trx1)	0.7917261	0.7348733	0.9400805	0.8640825	0.8413442	0.8007128	0.8722432	0.9557014	0.9115042	0.7677512	0.9110799	0.930181	0.7570159	0.9269024
Phase-1 RCT-225	0.5687768	0.8596091	0.7999845	1.3692746	1.1744996	0.7431118	1.3262959	1.0230334	1.954339	0.8422282	1.3487167	1.7447096	1.5282644	1.3791325
Protein kinase C alpha	1.0431842	0.8915947	1.0425026	1.072689	1.104208	0.9928528	0.9233683	0.8729349	0.8878306	0.8914163	0.9008751	0.8914163	0.7052178	0.7676415
Phase-1 RCT-87	0.9755843	0.9233789	0.9689491	0.91749	0.9986689	0.9628528	0.9678068	1.0122727	1.0743634	0.8882371	0.8766505	0.9112563	0.9122974	0.8566474
Phase-1 RCT-59	1.2079571	1.1136501	1.0195632	1.0277864	1.1726079	1.0952358	1.0166749	1.0430996	1.5573233	1.5939119	2.8678443	1.8918239	0.857368	1.029799
Cx43-binding protein	0.6388986	0.7028221	0.6216511	0.5506674	0.6151086	0.6679841	1.1421845	1.2480739	0.9044802	0.5381842	1.1773075	1.1656041	0.6815159	0.7381374
Phase-1 RCT-204	0.9328041	0.9965556	0.9401906	0.9321955	0.915742	1.0076454	1.0095606	1.0505644	1.0294287	0.9552375	0.9700053	1.0281935	1.0282518	1.0849814
Camitline palmitoyl-CoA transferase	1.2755116	1.6034126	1.265978	1.2466457	2.1334035	1.4087862	1.3604103	0.980958	0.8556547	0.9691103	1.001083	0.9723535	1.0602769	1.1446478
8-oxoguanine DNA glycosylase	0.99154	0.9938749	0.9517627	1.203186	1.1149639	0.9340207	1.0808245	0.9749963	0.9347489	0.9691103	1.001083	0.9723535	1.0602769	1.1446478
H-rev107	0.9986993	0.9772748	1.0798107	1.1261469	0.9959444	0.9453217	0.8773518	1.0237635	0.9176257	0.9162567	0.8114615	0.8993862	1.0068452	1.0549063
Preproalbumin	0.9349386	1.1626682	1.2016788	0.8078082	0.8294842	1.1399122	1.2618084	1.3800415	1.2241707	1.1252767	0.7317775	0.9190715	0.9551539	0.8155508
Phase-1 RCT-177	0.7583118	0.7633801	0.8940882	0.5814648	0.8069022	0.8461482	0.9605613	0.9784666	1.0600237	0.7317775	0.9190715	0.9551539	0.8155508	0.7971473
Phase-1 RCT-110	0.9465259	0.9847435	0.9803221	0.9402353	1.004188	1.1107664	1.0542169	1.0589597	0.9771525	0.9514105	1.0170902	0.9503539	1.2249172	1.1602638
Phase-1 RCT-227	0.8833574	1.0183736	0.8947167	1.0660263	1.0813193	1.0456865	1.1304039	0.9315083	0.8811207	0.9718331	0.9115999	0.9296936	1.0631701	1.1607137
Neuropeptide Y	0.952342	0.9726904	0.9153593	1.0660263	1.0813193	1.0456865	1.1304039	0.9315083	0.8811207	0.9718331	0.9115999	0.9296936	1.0631701	1.1607137
Phase-1 RCT-277	0.9487815	0.7033335	1.0747119	0.8574905	0.9126127	0.8481303	0.8874528	0.8494698	0.6248229	0.8103315	0.7550037	0.9401246	1.0878145	0.89657
Phase-1 RCT-229	0.9944908	0.9842871	1.0025935	1.0843538	1.0881026	1.0507909	1.1274085	0.9885305	0.9326184	0.9775681	0.9377722	0.9729041	1.1309967	1.1689243
Phase-1 RCT-34	1.4664594	1.104215	1.33316	1.2312793	1.2677217	1.1349192	0.7861378	0.8913192	1.1544548	1.2713096	0.6516143	0.9061475	1.2220098	1.0768808
Choline kinase	1.4081486	1.1065426	1.2669674	0.9868597	0.787567	0.9823182	1.3576117	1.0976198	0.9345477	1.3073691	1.204216	1.0678858	1.1104386	1.20285
Phase-1 RCT-20	1.079748	0.9636784	0.9785105	0.9745486	1.0258286	1.060652	1.081754	0.933942	0.9536305	1.0391593	1.1911302	1.0342894	1.1716925	1.222816
Phase-1 RCT-248	1.0111111	1.0348809	0.9511109	1.0691278	1.0556587	1.0835474	0.9363523	0.889097	0.9289191	1.0240046	1.1070495	0.9974635	1.2103872	1.2348486
(1) Gene expression data for 6 hour														
timepoint are presented as mean ratio of														
treatment/control for all 6 hour predictive														
genes (Table 20).														
(2) Compound and dose abbreviations as														
in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for														
compound-dose group at 72 h; yes,														
necrosis observed; no, no necrosis														
observed														
(5) Predictive gene (as in Table 20 and as														
included in Table 32)														

Table 34

Table 34. Expression Data for 6 Hour Timepoint (1)															
Compound-Dose (2)	Animal Number (3)	Liver Toxicity Necrosis Classification (4)	Gene Name (5)	APAP 250	APAP 1000	APAP 1000	APAP 1000	APAP 1000	APAP 1000	APAP 1000	APAP 1000	APAP 1000	APAP 1000	APAP 1000	APAP 1000
				2123	2131	2132	2133	2133	2133	2133	2133	2133	2133	2133	2133
				no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
				1.2833676	2.8652697	2.2053692	16.526773	3.8833592	1.1859112	2.222405	1.2815554	2.22445	1.2827231	1.6263807	1.1231719
				0.8854412	3.0686626	4.0263376	9.338897	0.801223	0.8417943	1.0039004	1.0884724	1.2428341	0.9731862	1.1907465	0.8377063
				1.2572212	1.5057205	1.4065558	2.0800755	1.345004	1.3498997	1.3741778	0.9960418	0.8029486	1.0505867	0.8958256	1.0225111
				1.0790439	8.173368	7.3543024	25.693027	1.2302867	1.1150937	1.2667177	1.142389	1.1695325	0.8881027	1.9246669	0.99709
				1.1835561	3.8341188	2.9738483	7.068734	1.4134004	1.1481281	1.4247699	0.8721312	0.7418424	0.8195843	0.9686022	0.5280728
				1.1922707	4.535991	2.916106	6.078287	2.374917	1.2667305	2.4035218	0.8621526	0.9166468	1.004528	1.0540372	0.8991864
				1.0833212	1.1310183	1.2480335	1.0102949	0.6449171	0.800101	0.7092608	1.11328	1.2759304	1.2022578	1.1440561	0.9110837
				1.3813352	4.0819297	4.76018	9.332855	2.106828	1.8182721	2.1182115	0.8795347	0.9616903	0.9055985	0.9986825	0.8465316
				0.9753878	0.846795	0.972178	0.862916	0.5719274	0.8692389	0.616393	0.8252425	0.7076232	0.690578	0.9132897	0.7484036
				0.9883985	2.2613726	2.3919814	3.2431889	1.1740044	0.9798954	0.989987	1.6817501	1.6574585	1.1471232	0.9895777	1.9307734
				1.150218	0.671182	0.6806226	0.5939342	0.4527957	0.9678382	0.6956947	0.9605427	0.9508268	1.2693534	0.7507686	0.9420203
				1.1867488	13.548119	10.5485	33.398887	2.0279884	1.2584152	1.7730714	1.6208329	1.9381371	1.7596792	1.3863268	0.9190062
				1.0468442	1.0412029	1.0545696	1.2883968	1.0513842	0.9758247	1.0705905	0.8642171	0.8515908	0.8717688	0.8827526	0.7767737
				0.7573767	0.7013438	0.6895827	0.8355773	0.7048579	0.8104224	0.7591108	1.2855503	1.2154696	0.7852871	1.176074	0.9468906
				1.0168993	0.9543521	1.1509932	1.0378531	1.0670931	0.9366294	1.0061761	0.9182245	0.7301281	0.7376878	0.6548318	0.5639867
				1.400157	14.160956	13.905536	23.974522	1.2035531	0.9562836	1.8891581	1.3180682	1.8091581	1.3495871	1.2124782	0.8913346
				0.9668472	0.9148698	0.9520063	0.5247123	0.9831317	1.0286175	0.8453749	1.3632781	1.4305674	1.1181933	1.2661705	1.121212
				0.9826602	1.0251853	0.935197	0.852195	1.0655175	1.1846897	0.9762626	0.9485362	0.811941	0.7282997	0.8759757	0.7611266
				1.3248705	1.7103213	1.9475437	3.0537068	1.2268347	1.2376106	0.7748598	0.7258931	0.8514756	1.0328242	0.8360089	0.9434525
				1.3705655	0.988665	0.9345324	1.4325621	0.9220569	0.8819405	0.9526205	1.031593	0.9696133	1.2418033	0.9481726	0.9409009
				0.7694708	0.9538303	0.8035187	0.5821927	0.9150877	0.9209889	0.846792	1.4488805	1.4581481	1.1011746	1.0035414	1.4129606
				0.4849268	0.3174208	0.511474	0.30757	0.8733867	0.8954018	0.9034812	2.3251815	2.4081612	1.3893541	1.0814594	1.1225266
				0.9491189	0.818133	0.7950084	0.8085916	0.7406378	0.9552835	0.7383463	1.4233798	1.5486678	1.3978257	1.0656973	1.2227253
				0.6966537	4.862477	3.1785836	4.9241757	2.5086343	1.6741941	2.6233454	0.8824803	0.9914189	0.8134917	1.1299344	0.8117443
				1.4619927	0.9477491	1.0070275	1.249107	1.0706055	1.0376211	1.1337601	0.8359786	0.856136	0.8365833	0.9389535	0.8374729
				0.6322364	0.3392425	0.2538878	0.2065512	0.6044028	0.9323341	0.7914829	1.3088267	1.5239232	0.8273349	0.869179	1.223318
				0.6266244	0.7820349	0.907084	0.9284899	1.2832224	1.0746332	1.3415979	0.9772607	1.085368	1.1645416	0.9030044	1.1117862
				1.1869835	5.2152505	4.37864	13.563021	1.253289	1.0005271	1.2484285	0.8046288	0.6905121	0.9192777	1.095002	0.6723857
				0.9610753	0.79304	0.8511427	0.6003673	0.9653761	0.847791	1.9118945	0.9051482	0.8991236	0.779321	0.8379424	0.8766744
				0.8689942	3.6127496	2.2939496	7.3033237	1.7115605	1.1299458	2.0643866	0.8390991	0.8902432	0.7675603	0.8484161	0.9692287
				1.4126616	3.5845058	3.6551895	13.280829	1.0013629	1.0964843	1.1761646	0.9695715	1.002009	1.2973942	1.0542092	0.9083367
				1.1924791	0.5289903	0.5434674	0.5297082	1.1266701	1	0.9255108	1.0557377	0.7398098	1.3561708	0.9445673	0.9291052
				1.0829906	1.4230836	1.6446908	1.820085	1.0360752	0.9749754	0.9652173	1.9159555	2.2409635	1.1695688	1.0052567	1.8420279
				0.758157	2.1165779	2.3839889	3.551137	2.0215065	1.587097	1.9394967	0.9323673	1.0369061	1.0211911	1.1739801	0.8228021
				0.8602158	1.075475	1.0207168	1.5035985	1.0242791	1.1490386	0.9811522	1.7008828	2.481638	1.4084326	1.698723	1.0987834
				1.340549	1.7863206	1.7628686	2.3381824	1.1482751	1.2680318	1.4800579	1.5342674	1.4600675	1.0381784	1.2275986	1.168384
				1.336161	2.3801498	2.702852	2.5246582	0.9160447	1.2249084	0.9155895	0.8976321	0.8004414	0.6035886	0.9074159	1.198804
				0.9920009	1.4747499	1.6550812	2.356271	1.6574907	1.2052785	1.8079613	0.9008715	0.9731344	1.283201	0.8719382	0.9526922
				0.2367094	0.2452198	0.2732631	0.3452185	0.5522181	0.5810199	0.4409009	0.6573786	0.62407	0.457007	0.29838376	1.1428109
															0.7471356

Proliferating cell nuclear antigen gene	1.1269474	1.6552235	1.5776664	4.7867675	0.9345541	0.9346888	0.99955248	1	1.067941	1.281485	1.1246222	0.931118	1.1586571	1.5951552
Integrin beta1	1.2108377	9.811679	8.983649	14.055526	1.4203438	1.1860901	1.4045798	0.8470569	0.7860312	0.9811975	1.4811423	0.8070595	1.0812325	1.2374202
Caspase 8	1.2268109	1.8303516	1.6200715	1.8847111	0.9884584	1.0559884	1.1180794	0.9648758	1.0550101	1.3244392	1.184546	0.8532372	1.0167348	1.4935948
Phase-1 RCT-116	1.3354244	3.4294546	4.4020015	3.05114	1.1839492	1.0497763	1.1342099	0.9646635	0.6434578	0.574877	1.2544726	0.6801186	0.8906511	1.7654039
Phase-1 RCT-109	1.1811211	1.103818	1.2927822	1.3460281	1.2342706	1.167453	1.2091409	1.0242515	1.0495168	0.8084827	1.0288997	0.7603701	1.0727433	1.30778041
Phase-1 RCT-71	1.2408624	2.1761372	3.332104	4.228915	0.8397183	0.9922937	0.8672417	0.8593702	0.8316898	0.8484329	0.9863953	0.8059375	0.9783551	1.424407
Elongation factor-1 alpha	0.6238232	0.8366218	1.0346955	0.6222716	0.8776314	0.876751	0.8144835	2.1465073	2.2840316	1.2199665	1.0976102	1.471849	0.998695	1.6447343
Phase-1 RCT-169	1.3390578	1.7248149	1.6991045	1.5242406	1.1180894	1.1240919	1.9467085	0.98890423	0.9586097	1.1000484	1.0801843	0.723598	2.2146275	0.8901262
Pyruvate kinase, muscle	1.1756511	1.3186174	1.5991045	2.0649593	1.4194711	1.1204011	0.9236372	0.9629668	0.9290081	1.0118904	1.0640341	0.9930127	0.9387758	0.9379457
Nucleosome assembly protein	1.7705489	0.6281483	0.5161758	0.7318954	1.0073657	0.9001569	1.0688637	0.8753691	0.8616391	0.8330908	0.8687897	1.125568	1.0341239	0.9215926
Phase-1 RCT-127	1.14286963	2.67086	2.4207894	5.818094	1.5074401	1.154673	1.5582777	1.0991471	1.2868633	1.1400989	0.9542866	0.8613882	1.0172685	1.1314005
Iron-responsive element-binding protein	0.908981	0.8870875	0.7556661	0.47405097	0.6335323	0.8370128	0.8326986	0.9877482	0.8938464	0.9399031	0.9979889	1.110358	1.0172685	1.1314005
Non-responsive element-binding protein	1.2909082	1.0559588	1.0973085	1.1270634	0.996435	1.0046988	1.1549898	0.8108403	1.4478388	1.0226473	1.1521875	0.8004521	1.2654474	1.0191278
Phase-1 RCT-144	1.1410845	1.3522149	1.3439575	1.9184092	1.5495965	1.254988	1.3679442	1.3629977	1.6870812	1.57457	1.158573	1.0158773	1.0346174	2.662074
Phase-1 RCT-242	1.36559389	11.27296		14.282213	2.9460149	1.8133638	3.0279845	0.9815138	1.0721933	1.2027814	1.1666648	0.9138585	1.0686887	1.506152
17 beta hydroxysteroid dehydrogenase, type 2	0.5392395	0.4039342	0.33889	0.2924891	0.9707062	0.684624	1.1185054	0.8135538	0.881378	1.0169827	0.9081136	2.0692112	0.919673	0.4092393
Phase-1 RCT-70	1.2966	1.2699563	1.4533943	1.395045	1.2705626	1.0519055	1.1450558	0.6742475	0.5959605	0.6082587	0.8551307	0.6213722	0.886092	1.0267142
Ribosomal protein L13A	1.254028	1.6759182	1.6898803	1.4947733	1.3337094	1.074133	0.9536992	1.1706169	1.1186786	0.8309715	1.1161859	0.97175542	1.3076353	1.5213856
Cytochrome P450 2E1	1.29404545	0.6245352	0.700478	1.3281889	1.5835394	1.0121319	0.9542792	1.2500467	1.2928176	1.2680972	0.7565138	1.1402076	0.9256630	0.9256666
AT-3	0.9501555	0.7574827	0.7471827	0.928106	1.0159845	0.9483119	0.998296	1.007276	1.2777038	1.2987584	0.9989786	1.7388157	0.8945578	0.8295817
Phase-1 RCT-270	0.8986545	4.905311	0.5463829	0.4122464	0.5680312	0.868144	0.6853549	0.7475411	0.3789817	0.5332491	0.9383752	0.7234678	0.041639	0.5997061
Phase-1 RCT-123	1.2102956	1.2404596	1.1821133	1.6174935	1.0727158	1.0350986	1.1081657	0.9734989	0.8671539	0.8802449	0.9053454	1.25346	1.010781	1.5569097
Alpha-2-macroglobulin, sequence 2	1.008187	1.8641972	2.5372458	2.765734	0.9642751	0.9734716	0.9734989	0.8671539	0.8802449	0.9053454	1.25346	1.010781	1.5569097	1.25391
Matrix metalloproteinase-1	1.0687732	1.564284	1.6850691	1.5348325	1.2066159	1.0945993	1.2482721	1.430375	1.5708599	1.139708	1.0305166	1.5980741	0.7094278	1.8254836
Beta-tubulin, class I	1.5157207	2.134808	1.818515	2.2801545	1.202307	1.6354952	2.386514	1.0567042	1.779519	0.958498	1.2239285	1.1280888	0.7014287	3.089769
Phase-1 RCT-161	0.6703033	0.8583385	0.9613807	1.457921	1.7440358	0.7527317	0.8286552	0.8584848	0.8628794	0.9350997	0.7729689	0.8681383	0.8489124	1.3272063
14-3-3 zeta	1.5055902	1.29355924	1.274428	1.937108	1.874702	1.1252446	1.023445	0.8193383	1.1856483	1.0368241	1.123189	1.0312692	0.9885163	1.3275592
Stem cell factor	0.7273573	0.7266302	0.6381391	0.3551296	1.0141457	0.9327166	0.9011831	1.0001287	1.1375046	0.9285532	1.0290661	1.0584728	1.1428571	0.9192463
Macrophage inflammatory protein-2 alpha	1.1854746	1.7635239	1.9319863	2.937391	1.5103047	1.1140451	1.6523249	1.3236535	1.9178009	1.3106743	1.599325	1.0535439	1.1626041	1.444545
Thymidylate synthase	1.4898455	1.0538392	0.8344627	1.4778613	0.861453	0.9986866	0.9239894	0.9933322	0.9342039	1.104842	1.3136511	0.9252456	0.9882354	0.9671611
C-Jun	1.3416798	5.9786095	3.4186622	18.5575	2.084037	1.2743791	2.7892826	0.9031208	0.909089	1.1665666	1.3718072	0.7587181	0.9375775	1.9331288
Superoxide dismutase Mn	1.1041779	1.1113485	1.089426	1.2033713	1.1368082	1.04943	1.1317236	2.8455303	6.6514874	2.055473	5.7099407	0.9716857	3.1926608	1.2504418
Phase-1 RCT-73	0.7951165	0.7932463	0.7592893	0.6148349	0.8974472	0.9713426	0.8946707	0.9584968	0.9044674	0.9066992	0.9257829	1.1669708	0.8054327	1.0115399
Macrophage inflammatory protein-1 alpha	1.3512194	1.2765998	1.3482242	1.6690646	1.2612367	1.0736232	1.4281094	1.014009	1.551578	1.6593884	3.4168303	0.9196251	4.1036663	1.0827728
Phase-1 RCT-214	0.7108905	0.588397	0.4833059	0.5038679	0.5124366	1.0846786	0.5194139	0.8298774	0.8245065	0.7530702	0.6947228	0.9738001	1.232778	0.938005
NADH-cytochrome b5 reductase	1.8176254	0.4992453	0.6353577	0.4960838	0.7335173	0.3651967	0.7786833	0.724403	0.518932	0.5604603	0.6337785	0.9715504	0.9169055	0.9202379
Interleukin-1 beta	1.1580855	1.2193122	0.6550312	0.8821446	0.9991229	0.9991229	0.9040231	1.6692352	1.9413327	1.206328	1.8558786	1.5662885	1.4918212	1.3828402
NADP-dependent isocitrate dehydrogenase, cytosolic	0.7464856	0.813383	0.5875144	0.5276151	0.6363973	0.8949876	0.5124672	0.9880197	0.7330702	0.5779246	0.8402528	1.1019773	0.9003602	0.8779755
Phase-1 RCT-289	0.8429457	0.5952577	0.6081959	0.6202735	0.7536095	0.8116719	0.7709159	1.005513	0.7725764	0.6248746	0.8313635	1.1866156	1.0164912	0.9034695
Citidine synthetase	0.4982349	0.3969865	0.3727181	0.3012133	0.9870188	0.8643474	0.9600273	1.8060124	1.8759016	1.4036744	0.9213638	1.4577339	1.3041193	1.7682787
Phase-1 RCT-182	0.8819477	0.4880117	0.5739881	0.4716944	0.6012949	0.7359912	0.7885707	0.9790534	0.8870774	0.9078347	0.6062654	1.1961141	0.917619	0.9373454
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.7462807	0.8069872	0.7713166	1.0204965	1.0512776	1.0339141	0.9855464	1.692844	2.677772	1.7114688	1.3161448	1.3883181	1.0088028	1.159771
Extracellular-signal-regulated kinase 1	0.4438902	0.7546413	0.6381694	0.3511591	0.9258014	1.0083622	0.8986571	0.7513485	0.6454964	0.6782128	0.6780833	1.0605838	0.9008842	1.2373742
Emerin	1.0044427	0.9028459	0.8069917	0.8449364	1.0125816	1.0449198	1.03981	0.8274538	0.7654445	0.7690964	0.8400378	0.7695857	0.8571429	1.1236226
Phase-1 RCT-78	0.882611	1.2713389	0.8640504	0.8121452	0.808046	0.98959081	1.0141305	0.8078689	0.7323281	0.7542073	0.7054814	0.8544881	0.8413216	0.8309174
Phase-1 RCT-212	1.129727	1.0167435	0.9820968	1.0684634	0.9890375	0.9890375	0.8628772	1.0157853	0.97511	1.0545986	0.8248079	1.1158462	1.3270895	1.3270895
Phase-1 RCT-168	0.6884185	0.5713901	0.5481381	0.4552002	0.5115341	1.0012994	0.6087013	1.137693	0.8328424	0.8516197	0.8681976	1.2466448	0.8638769	0.7994271
Lysyl hydroxylase	0.4928167	0.4412355	0.471529	0.3402851	1.0047185	0.95692797	0.9790999	1.5969894	1.870462	1.4870538	0.9972433	1.464438	1.4476191	1.3971894
Phase-1 RCT-55	0.9905435	1.232559	1.0003196	0.7491241	1.0439861	1.0839958	1.1921021	0.7959092	0.8698116	1.027638	1.2014747	1281852	0.8927585	1.0631729

MHC class I antigen RT1.A1(f) alpha-chain	1.2988966	1.6591353	1.8104838	1.9732566	1.3480786	1.1661988	1.399407	0.661409	0.4987175	0.6462881	1.2530849	0.6170302	0.7750966	1.3714314
Phase-1 RCT-40	0.6127362	0.5150169	0.6354469	0.3835705	0.737513	0.8609299	0.8431448	0.9208795	0.9553725	0.6295013	0.8417852	0.8418249	0.7800563	0.9231428
Cyclin G	1.218994	2.001303	1.7833366	3.6087186	3.858344	2.4275937	3.877533	1.5188445	2.003793	1.3158327	1.8473654	1.0757948	1.2288648	2.7765043
Peroxisome proliferator activated receptor gamma	1.5170406	1.269258	0.9505113	1.2365546	1.1919423	1.0771556	1.0876944	0.9899165	0.899432	0.9780455	1.0186231	1.0364383	1.0749035	0.8753388
Phase-1 RCT-280	0.9288427	0.747173	0.5944901	0.9856027	0.9494678	1.0272989	1.0607578	1.0481311	1.1514975	0.743403	0.9837706	1.0749862	1.0313078	0.7827933
D-dopachrome tautomerase	0.7741818	0.4240231	0.566394	0.5321072	0.6818873	0.8673754	0.8344342	1.5270028	1.3458848	1.3664465	0.7981582	1.6320134	0.7127796	1.7746048
Phase-1 RCT-287	0.7807378	0.7618116	0.6975372	0.5842825	1.0184065	0.9006732	0.8372893	1.0146879	1.2071545	0.8914678	0.9759833	1.1189647	0.9604863	1.3184599
Phase-1 RCT-119	1.575788	0.680642	0.9481295	2.119288	0.8064894	0.8496223	0.8126093	0.618373	0.6522032	0.885531	0.7172119	0.6587088	0.8841782	0.8688115
Thioredoxin-1 (Trx1)	0.8285027	0.8585535	0.8828543	1.0021558	0.9934167	1.0377915	1.1050989	1.0304661	1.2193178	0.8520268	1.1992112	0.7804762	1.1848342	1.4049199
Phase-1 RCT-225	1.1217961	0.9779037	0.8794202	1.284452	1.2959278	0.9439515	1.0442888	0.623296	0.7486572	0.670354	1.197863	0.5803517	1.207283	2.154817
Protein kinase C alpha	0.6613561	0.7075053	0.7613173	0.4578037	0.9341098	0.9863448	0.9204977	1.147841	1.4330989	1.3066121	0.9774463	0.8912331	0.9247547	1.0855121
Phase-1 RCT-87	1.1432753	0.8521053	0.6556129	0.6937014	0.7346196	0.9817095	0.714859	0.9923328	1.0700049	0.9046232	0.9407218	1.0710311	1.0277023	1.7680452
Phase-1 RCT-59	0.9008778	2.4023085	3.3261206	3.3207152	3.490766	2.2734041	3.0521646	0.9563984	0.986361	1.0126835	0.9857324	1.0434306	0.9149561	1.8286296
C4b-binding protein	0.7397209	0.4105776	0.5429909	0.4467945	0.8031535	0.9076686	1.0161415	1.7961113	2.2868807	1.3581133	1.2151393	1.1341035	1.1361027	0.6853663
Phase-1 RCT-204	1.1127936	1.5019838	1.5661345	2.150679	1.3204478	1.289903	1.3324735	0.9473242	0.8503516	0.9016564	0.9474008	0.9855681	1.0118572	1.0174831
Carboline palmitoyl-CoA transferase	1.2132612	1.9683046	2.0227141	2.8518858	1.2222484	1.1607535	1.1837156	0.9479222	0.9730886	1.2914367	1.0168656	0.9122443	1.0126337	3.2076786
8-oxoguanine DNA glycosylase	1.1321105	0.937788	0.9086896	0.8296641	0.9376517	0.9616533	1.0034939	1.0531216	1.0174766	1.2601582	0.9219414	0.9065659	1.0679612	0.9989176
H-rev107	1.0920812	0.7136611	0.8658882	0.9965694	0.9857026	1.0195576	1.1095957	1.0527982	0.9817797	1.0289665	1.0200597	1.0260999	1.0261781	0.8171401
Preproalbumin	1.1068668	1.6604996	1.7491046	1.480588	1.011479	0.932837	0.803871	1.0922517	0.9988509	0.4436021	1.163593	1.2411113	0.8309384	0.9033754
Phase-1 RCT-177	0.7448074	0.6922967	0.6148238	0.4757334	0.8072098	0.8958054	0.7880521	1.0467489	1.0233972	0.6481074	0.8724402	0.9526593	0.8066127	1.3214151
Phase-1 RCT-110	1.3190069	1.0537738	1.0217078	1.6215957	1.1138569	1.0275468	1.0958928	0.9358587	0.9305552	1.0806825	0.9086849	1.0540538	0.9475952	0.7626218
Phase-1 RCT-227	0.7802363	0.7960682	0.9408557	1.0318712	1.0470771	0.8737387	1.0100106	0.9733071	1.0201755	0.8235298	0.6616358	1.1997872	0.8174468	0.8849589
Neuropeptide Y	1.1003243	1.0657874	1.0751232	1.1736677	1.1800393	1.0212678	1.1195029	0.9721841	0.9891285	1.1028893	0.9963159	1.1013198	0.9544742	0.8040733
Phase-1 RCT-277	1.0258058	0.4458227	0.6084315	0.4691839	0.8598783	0.9803214	0.8754364	1.2602087	1.3503413	0.765976	1.3098913	1.4923527	1.1787853	0.9559842
Phase-1 RCT-229	1.2298583	1.1051877	1.1345339	1.4589843	1.1055484	0.9956344	1.1371984	0.8300371	0.8910498	0.9759458	0.9396569	0.8616939	0.8749145	0.8034117
Phase-1 RCT-34	1.3125105	1.643493	1.9507734	2.344811	0.7083609	1.1385628	0.8522291	0.7865872	0.6976745	0.9467362	1.0304617	0.8415674	1.0398529	1.8435344
Choline kinase	1.409967	2.7410498	3.1735117	5.967005	1.605774	1.3762558	1.0870066	0.7532733	0.6464502	0.974056	1.1024599	0.8084133	1.2108538	1.680069
Phase-1 RCT-20	1.2798857	1.3657325	1.4120107	1.5395861	1.060735	1.0839695	1.0870066	0.9343688	0.9343202	1.0333788	1.1269286	0.937857	0.8882678	1.772686
Phase-1 RCT-248	1.2518598	1.0471131	1.2127873	1.4854348	1.1022316	1.0706614	1.1607368	0.9365988	0.9488414	0.9399359	0.9812439	0.7951276	0.938945	0.883486
(1) Gene expression data for 6 hour														
timepoint are presented as mean ratio of														
treatment/control for all 6 hour predictive														
genes (Table 20).														
(2) Compound and dose abbreviations as														
in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for														
compound-dose group at 72 h: yes,														
necrosis observed; no, no necrosis														
observed														
(5) Predictive gene (as in Table 20 and as														
included in Table 32)														

Table 34. Expression Data for 6 Hour Timepoint (1)																			
		AZA 50	AZA 50	AZA 50	AZA 200	AZA 200	AZA 200	AZA 200	AZA 200	AZA 200	AZA 200	AZA 200	AZA 200	AZA 200	AZA 200	AZA 200	AZA 200		
		1822	1823	1831	1832	1833	1833	1833	1833	1833	1833	1833	1833	1833	1833	1833	1833		
		no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no		
Gene Name (5)		1.8454348	1.6153513	2.2703047	1.2577282	3.630317	0.7684429	1.1583636	0.9683761	1.1387544	0.9452878	0.9515294	0.8415396	1.008518	0.9854388				
Gad6153																			
Interferon related developmental regulator		1.2087835	1.1382556	1.3228651	1.1391714	1.874888	1.2101073	0.9631772	0.9095981	1.0439614	1.1902914	0.9706668	0.6318749	1.0416102	1.0051893				
IFR1 (PC4)		2.0393023	1.7899401	1.3756752	1.2945112	1.0365846	0.8753756	1.2192289	1.0536817	1.1008228	1.0810982	1.0023307	1.0071018	0.9465805	0.8542463				
Insulin-like growth factor binding protein 1		1.4774516	0.9600517	4.1868317	4.025772	12.340709	1.2612039	0.9549934	1.0717798	1.0304934	1.5515112	1.0748788	1.3534724	0.7378288	0.9144203				
NIPK		1.5692705	2.1763103	1.8816975	1.2518861	2.5278463	1.1369338	1.2889326	0.8742918	1.3283052	1.2025973	0.9985361	1.4874468	1.2075617	0.9180057				
Phase-1 RCT-50		2.3933205	2.7417428	2.815239	1.8633687	4.198423	1.0228636	1.0317639	1.1117833	1.1301895	1.6554614	1.0153717	0.9361773	1.1907914	1.014833				
Sarcoplasmic reticulum calcium ATPase		1.237868	1.111254	1.1861162	0.9933422	1.452521	1.1671053	0.9853907	0.9348387	1.0755188	0.9380012	1.0487066	0.8337493	0.9241457	0.999489				
Phase-1 RCT-207		1.2298633	1.4988973	1.4156235	1.170791	2.1685083	1.0301977	1.2152554	1.0148903	1.0669198	1.1017363	1.0480603	0.9778493	0.9879798	0.9709057				
Acetyl-CoA carboxylase		0.9585775	1.0783294	0.8387573	1.0194608	1.0003153	0.9302827	0.942078	0.8281677	0.9236103	0.8565658	0.8831171	0.925112	1.0469472	0.9993674				
Cathelin L ₁ sequence 2		1.4150711	1.5586997	2.137058	1.3895893	2.4141994	1.3124033	0.9678788	1.226452	1.292512	1.4688503	1.280369	1.3073148	1.0018548	1.1608837				
Glucokinase		1.3804253	1.5878945	1.2336694	1.3445233	1.3331839	0.915666	0.8561847	0.7594352	0.9386287	0.8855665	0.782422	0.8930602	0.9875494	1.3617824				
Gadd45		0.8941425	1.1490391	1.2975433	1.0828297	1.6210274	0.9032624	1.22628	1.1544037	0.9587532	1.4173826	1.0051658	1.2708099	1.2991488	1.4883206				
Phase-1 RCT-18		0.9620071	1.0106235	1.0081054	1.0918618	1.128888	0.9678527	0.9876105	0.9815613	0.9881352	0.95618	0.9626559	0.937878	1.0430925	0.971598				
3-beta-hydroxysteroid dehydrogenase (HSD3B1)		0.9045488	1.0175962	1.004205	0.9554967	0.9176639	1.176781	0.9023594	1.0252222	1.1046706	0.9366363	1.0382205	0.9281052	0.7567052	0.8420869				
Phase-1 RCT-221		1.0077071	1.0987163	1.1576494	1.050746	1.2389913	0.8856884	0.8765698	0.9006341	0.9371884	0.8558375	0.9508658	0.9650373	0.8389558	0.7638605				
Heme oxygenase		3.287646	1.7726042	0.9181582	1.8490497	3.2434382	1.0745497	1.1904697	1.0754748	1.1856081	1.409539	1.0226585	1.2050859	0.9456133	0.9078509				
Cyclin dependent kinase 4		1.4084543	1.1774492	0.9712563	1.1932667	1.151295	1.2534981	0.9288549	1.0312159	0.9902147	1.0065714	0.9885337	1.0168159	0.9451839	1.0631801				
Phase-1 RCT-75		1.8019328	2.4566526	1.6907684	1.5872147	2.0907846	0.9838478	0.9611864	1.0002882	0.996945	1.1225103	0.9007581	1.1378868	1.2508633	1.0868421				
Phase-1 RCT-65		2.0520449	2.195232	1.4784111	1.6742237	1.7555109	0.9429258	1.0514684	1.0479249	1.2152191	1.4472709	1.0905639	1.338218	1.220204	1.019122				
Cytochrome P450 1A1		0.898658	0.9186718	1.0645486	1.0787554	1.1018984	0.8286161	1.3541065	1.1124738	0.832781	1.259691	1.0051148	1.2191882	1.2372239	1.3378577				
Peroxisomal multifunctional enzyme type II		1.4914567	1.1491429	0.982894	1.2787249	1.2739728	1.1217132	1.097673	0.9772015	1.014494	1.127635	1.1291828	1.0633434	1.1092238	0.8627082				
DNA topoisomerase I		1.4717432	1.2858986	1.238216	1.2659783	1.4154758	0.9657008	0.8387902	0.9348186	1.1189626	0.8519251	0.9813798	0.9151466	0.8651702	0.8817974				
Focal adhesion kinase (pp125FAK)		1.2089536	1.0463614	1.2220081	1.2794571	1.2437392	0.9727681	1.0716922	1.0693499	1.0599475	1.1384406	0.9318082	0.9915662	1.0257202	0.9959123				
NGF-inducible anti-proliferative putative secreted protein (PC3)		1.914832	2.2651303	3.7568817	3.0069327	8.955394	1.068386	0.8254973	0.7710759	0.9479479	0.885401	0.8494008	0.9479582	1.0350783	0.7988226				
Phase-1 RCT-82		0.9600505	0.957578	0.8653934	1.0532188	0.9306153	1.0182207	1.0333428	0.9886292	0.992726	1.0045571	1.053785	1.0144789	1.0352397	0.9392172				
Senescence marker protein-30		0.6076438	0.4440376	0.315113	0.5811751	0.5656847	0.8990287	0.9056241	0.7703715	0.9048498	0.4903531	0.7882633	1.072287	0.7759587	1.1280499				
Melanoma-associated antigen ME491		0.9725783	1.3121358	0.9265357	1.04342	1.0614648	0.9712471	1.2499882	1.1408322	1.2807392	1.054248	0.8284736	0.9177795	1.0254962	0.9915676				
Activating transcription factor 3		1.1786467	0.940407	1.6364841	1.3741331	1.8530256	0.9631472	1.2216127	1.0438858	0.9382019	1.0286302	1.140475	1.1288996	0.9459148	0.995845				
Tryptophan hydroxylase		1.0380007	0.9782817	0.6934722	0.9015474	0.6219958	0.9752254	0.8964503	0.9281074	0.8884928	1.1281359	0.8335435	1.1253415	1.068326	1.1382437				
Zinc finger protein		1.6896239	2.3295126	3.3395178	1.7314243	4.9114466	1.0815872	1.1262603	1.0347207	0.9435904	1.0613304	0.945529	0.9707221	0.902717	0.9417827				
c-myc		2.0205328	1.6513811	2.5686285	1.8141532	2.8426813	0.8732964	1.0201082	1.0291198	0.8782018	1.1184841	1.1237218	0.8432874	0.958439	0.9128096				
Cholesterol 7-alpha-hydroxylase (P450 VII)		0.7980877	0.8896948	0.9728787	1.2120849	0.4634639	0.9355	1.1478853	0.879029	0.8988271	0.5879188	0.7874284	0.9602838	1.0467876	0.887899				
Ferritin H-chain		0.7259273	0.6381798	0.4632858	0.672282	0.674234	1.2500324	0.9850146	0.9850194	0.9726592	0.9390332	1.0208918	1.1963959	0.9338194	1.0811028				
Phase-1 RCT-197		1.079577	1.0240341	1.1786755	1.0349623	1.397863	1.057768	1.07618	1.031227	1.0368139	1.105129	1.0866933	0.9839378	1.064774	0.9465814				
Phase-1 RCT-179		1.6550987	1.8030298	1.8449848	1.1742322	1.8441302	1.2268437	1.112049	1.034931	1.2662401	1.0775819	1.0372267	1.042189	0.9478235	1.0046651				
Phase-1 RCT-15		1.9458218	2.3901346	2.08598	1.8094732	3.7290175	1.0159751	1.1597381	1.271488	1.3232657	1.1758727	1.0664738	1.0500056	0.9621097	1.4068993				
Argininosuccinate lyase		2.8587806	3.5685694	2.4148872	1.6894931	2.4476388	1.0819371	1.0244849	1.2148846	1.2828277	1.3593861	1.0105871	1.2600881	1.0079525	1.0670993				
Phase-1 RCT-49		1.2049912	1.4289428	1.2147334	1.1635863	1.431827	1.0397378	1.1629713	1.0358545	1.1198446	1.018911	0.9605095	0.9930345	1.044677	1.0576253				
Carbonic anhydrase III		0.3886747	0.8382018	0.2439355	0.2678276	0.2268833	1.553966	1.3769562	1.1699673	0.9092153	0.280493	0.8785826	0.744348	0.518957	0.5812943				

Proliferating cell nuclear antigen gene	1.403924	1.3074068	1.2528165	1.1876034	1.3708092	0.935218	1.2876757	0.9965413	0.8725171	1.0424138	1.0504996	0.9029927	1.0552375	0.9963119
Integrin beta1	1.0191647	0.9134213	1.4534758	0.9107089	2.275143	1.027478	0.9618995	1.1089677	1.1594422	1.2221786	1.1600702	1.153276	0.9791925	0.9688249
Caspase 6	1.3798392	1.1501068	1.0802578	1.0356654	1.3100941	1.1288208	1.0118423	1.0112442	1.0864149	1.0586573	1.047405	0.928894	0.9838504	1.0308443
Phase-1 RCT-116	1.8895009	1.944999	1.5608617	1.7544655	1.7949226	0.7281658	1.0437362	1.103397	1.214551	1.1358361	1.2505431	0.9276549	1.0343718	1.0981034
Phase-1 RCT-109	1.1161093	1.1229287	1.2617439	1.3744372	1.3791358	1.1272007	0.877049	0.9732894	1.0706593	0.9822745	0.9599237	0.9894444	1.0157758	1.0539043
Phase-1 RCT-71	1.510902	2.0123925	1.332907	1.4250013	1.9319286	0.9219413	1.166875	0.8058921	0.9783335	0.8728668	1.0502499	1.2519714	1.189545	1.1203063
Elongation factor-1 alpha	1.2228757	1.1040053	1.0604708	0.9827902	1.2657409	1.1420176	0.8734031	0.9354629	1.0330127	0.9176871	1.0042218	1.2135237	0.9867677	1.2003436
Phase-1 RCT-169	0.6880861	0.8090251	0.8306079	0.7641868	0.7561134	0.8641145	0.9987432	1.1302775	1.0221606	1.1331176	1.0322253	0.7711418	1.0613542	0.9930456
Pyruvate kinase, muscle	0.9811322	1.0238789	1.1094862	0.7790501	0.9728495	0.9584176	0.9574732	1.1109506	1.1102535	1.0512054	1.084391	1.024586	1.043931	1.024586
Nucleosome assembly protein	0.8832467	1.026528	0.694489	0.8681498	0.7742369	0.553018	1.2141889	0.5948792	0.8922827	0.3964799	1.0437826	0.7854957	1.046975	1.1331194
Phase-1 RCT-127	1.6771466	1.944247	2.8616943	1.4297763	2.5194345	0.9285578	0.9643747	0.9081555	1.0382477	1.1604956	0.9046334	0.9197086	1.0473063	1.071945
Iron-responsive element-binding protein	0.9758065	0.9853121	0.8643121	0.8603492	0.8367039	0.9269268	0.6784457	0.9073534	0.9034723	0.9853731	0.934786	0.934786	1.0473063	1.071945
Phase-1 RCT-72	1.1676978	1.3555491	1.6707041	0.9350559	1.4908531	0.9505301	0.9885665	1.01911	1.1106812	0.9880304	1.0734684	0.8700177	1.0917567	1.0408886
Phase-1 RCT-144	2.5976505	2.799812	2.1138384	1.952579	2.8650112	1.0017062	1.2311654	1.1519816	1.1261474	1.0943449	1.0185765	0.857712	1.0796282	1.001341
Phase-1 RCT-242	1.4995015	1.9234961	4.97803	2.601281	11.4882845	0.9817168	1.3860449	1.1493311	1.1277505	1.3467069	0.9802957	1.0186136	1.0789002	0.9350919
17-beta hydroxysteroid dehydrogenase, type 2	0.578491	0.9195884	0.2841888	0.353854	0.3587458	0.4212439	1.2421407	0.4703984	0.8372051	0.1537785	1.2012304	0.4908962	1.236198	1.6672584
Phase-1 RCT-70	0.870917	0.9500216	0.8432429	1.1055617	0.8987861	1.032583	1.1535485	1.0559789	1.0786541	1.2282121	1.1394027	1.0419157	1.0635666	0.8989135
Ribosomal protein L13A	1.1916605	1.1180195	0.9025008	1.0178058	1.0575814	1.0361423	0.8240427	1.0075092	0.9552864	0.9261219	1.0221624	1.0358661	1.0358661	1.0358661
Cytochrome P450 2E1	0.8217463	0.8089083	0.7939387	0.7798795	0.49442	1.0716884	1.06448	0.8185895	0.8376579	0.8333358	1.2942786	1.6571988	1.3947438	1.5483325
AT-3	0.8690952	0.9175097	0.9317158	1.1079845	0.9153247	1.0514488	0.9979278	1.0514518	1.0863788	1.1334628	1.0761588	0.8829327	0.9571089	0.841878
Phase-1 RCT-270	0.7656059	0.7836567	0.5242405	0.6060677	0.6121206	0.989503	0.9269268	0.6784457	0.8720043	0.5426679	0.8007188	0.8223022	0.9738163	0.940589
Phase-1 RCT-123	0.9029953	0.9943603	1.0597963	1.0219479	0.9845551	1.0312549	1.016273	1.0274695	1.0060921	1.1269206	1.0010532	0.9301158	0.9754632	0.940589
Alpha-2-macroglobulin, sequence 2	1.4344763	1.5226294	1.1021414	1.0522622	1.2363093	1.355085	0.9826317	1.0431353	1.1370115	1.1289165	1.421741	0.9678952	1.148094	1.040656
Matrix metalloproteinase-1	2.299136	1.0790876	0.583775	2.3958344	0.7474531	1.3127109	1.064138	1.1204358	1.0840208	1.1142859	1.1589211	0.9670295	1.0406342	0.948445
Beta-tubulin, class I	3.0734763	3.1595273	2.6005182	2.2041762	4.0310283	1.0620667	1.4178052	1.0893312	1.0786425	0.8093006	0.9210888	0.8369234	0.994845	0.958304
Phase-1 RCT-161	0.6436908	0.9338204	0.5731397	0.6634454	0.4707212	1.0779816	1.136107	1.0563987	1.0216721	1.1776572	0.9661908	1.0573982	0.9455785	0.893805
14-3-3 zeta	1.5320332	1.8057389	1.2555185	1.2891565	1.4776924	0.9043232	1.1570949	1.0827193	1.0327682	0.9628457	1.0313359	1.038877	0.983877	0.983877
Stem cell factor	1.0276536	0.8536892	0.74617	1.0709616	0.6877525	1.152533	1.0292016	0.8448869	1.0418656	0.9175937	0.9915058	1.0740446	1.0569812	1.0569812
Macrophage inflammatory protein-2 alpha	1.6986376	1.4569376	2.2329133	2.3857834	1.9290633	1.0716646	0.9977906	1.362949	1.2373819	2.1291444	1.2273024	1.1747035	1.1052834	1.0482251
Thymidylate synthase	0.9309338	0.9320583	0.900398	0.8063534	1.0715797	0.8162859	0.9559851	0.8534631	0.8668214	0.7610875	1.0161531	1.0199044	1.101687	0.9376044
C-Jun	1.8582804	1.8694681	2.2930316	1.9724668	2.6356294	0.8907335	1.0907642	1.2735114	1.0538281	1.3020523	1.1935297	0.9770911	1.1124692	1.0067432
Superoxide dismutase Mn	1.0680243	0.9990187	0.8322479	0.7568689	1.1502824	1.095552	1.0217282	0.9754357	0.9188979	0.9881703	1.0945923	1.1759368	1.210189	1.0883915
Phase-1 RCT-73	0.9643959	0.9584799	0.9231306	1.1488204	0.8450612	1.016989	0.9845282	0.912441	1.0235337	1.0541768	0.9722238	1.1255492	1.1050091	1.0694866
Macrophage inflammatory protein-1 alpha	0.9249432	0.9224536	1.2443128	0.9552614	1.153597	0.9454289	1.163116	1.317512	2.12987	1.3809446	1.0288526	1.0061669	0.9673199	1.0826346
Phase-1 RCT-214	1.0540543	0.9568391	1.0605855	0.8932877	0.7770945	0.8216128	1.5341064	0.8929969	0.7957775	0.5479866	0.8374233	0.8316043	0.8408492	1.0978923
NADH-cytochrome b5 reductase	0.8518867	1.1021755	0.7062869	0.82004	0.8416947	0.9689879	0.9536417	0.7670028	0.8907043	0.8850178	0.9748021	1.318038	1.0787482	1.0765324
Interleukin-1 beta	1.0635978	1.016666	0.8295447	1.0873649	0.8624718	1.1613837	1.0029951	1.0518932	1.0426127	1.1089993	1.010734	1.059884	1.0415621	1.0566024
NADP-dependent isocitrate dehydrogenase, cytosolic	1.0084207	0.7856884	0.8014894	0.968227	1.153597	0.9454289	1.163116	1.317512	2.12987	1.3809446	1.0288526	1.0061669	0.9673199	1.0826346
Phase-1 RCT-289	0.9060668	0.8874055	0.7109394	0.9828971	0.6705193	1.1287707	1.0124767	0.8605115	0.8655248	0.7888005	0.9560064	1.1264015	1.0624944	1.0771321
Glutamine synthetase	0.992063	0.701481	1.2314194	1.2614123	2.1154976	1.0293003	0.879449	0.985204	0.9218724	0.8859083	1.0000782	1.0842863	0.7622418	0.8726466
Phase-1 RCT-182	1.2192341	1.3831582	0.8706614	0.7764178	0.7080161	1.0864663	0.9236989	0.744724	0.7713571	0.8825076	0.9038289	1.1004655	0.9374847	1
Ubiquitin conjugating enzyme (RAD 6 homolog)	1.057868	1.1671858	1.2701374	1.104426	1.2518088	1.1215034	0.7775831	0.853883	0.9874579	0.8972662	0.8485302	0.9909887	0.9505234	1.0095976
Extracellular-signal-regulated kinase 1	1.2493126	1.3261694	1.1728971	0.6734789	0.6607913	1.4305286	1.3362181	1.1243949	0.9884328	0.9190032	0.9388947	0.81425	0.6573305	0.7010248
Emerin	1.2493126	1.3261694	1.1728971	0.6734789	0.6607913	1.4305286	1.3362181	1.1243949	0.9884328	0.9190032	0.9388947	0.81425	0.6573305	0.7010248
Phase-1 RCT-78	0.9076651	1.0470706	0.833615	0.8757933	0.7561464	1.0971451	1.3947152	0.9447072	1.077075	1.019669	1.0980341	0.9636014	0.9805593	0.9868971
Phase-1 RCT-212	1.2115074	1.2222426	1.3288281	1.080613	1.4374882	0.9709001	1.0348009	1.0131453	1.0594159	0.9069422	1.0486423	1.207618	1.148252	1.1241823
Phase-1 RCT-168	1.1739362	1.118883	1.1318314	1.328074	0.6458857	1.0290341	1.0286711	0.6933837	0.8576606	0.5339265	0.8789651	0.8911815	1.1608813	0.8911815
Lysyl hydroxylase	1.0380856	0.9047957	0.9308733	0.8319472	1.1628278	1.0190585	0.9055197	0.9649132	0.9284635	0.8177961	0.9473484	1.0548344	0.9080069	0.8974394
Phase-1 RCT-55	0.8464771	0.8554151	0.7659817	0.761888	0.823519	1.0528472	1.0662453	1.2045653	1.5779855	0.8353053	1.115457	0.9038845	1.1947882	1.0233763

MHC class I antigen RT1A1(0) alpha-chain	1.4986897	1.7525383	1.3104522	1.4503052	1.5033327	1.5030065	1.1345328	1.1553309	1.157107	1.2515545	1.1741903	1.08581	1.1188116	1.2572243
Phase-1 RCT-40	0.8862413	0.9394777	0.7965719	0.839186	1.1095096	0.987164	0.9765561	0.9976908	0.8128642	0.8710024	0.8710024	0.8710024	0.8271677	0.8514841
Cyclin G	1.8117791	1.9583093	1.618793	1.471769	3.109558	0.9285543	1.091125	1.223063	1.0394315	1.2198827	1.1107566	1.0720488	1.0913224	1.1404341
Peroxisome proliferator activated receptor gamma	0.9635546	0.9376665	0.6260203	1.022725	0.7775657	0.7160233	0.8227503	0.6163117	0.7980248	0.6249851	1.0803914	1.0839412	1.2062597	0.9784958
Phase-1 RCT-280	0.7444198	0.743405	0.8394421	0.8321009	0.7953185	1.0345894	1.0216712	1.1429276	0.8652598	1.0053462	1.0177286	1.1412182	0.9327691	1.1380948
D-dopachrome tautomerase	1.6425738	1.4984787	1.2110263	1.4387175	1.0553871	1.3847795	0.8959435	0.9496489	0.9606551	0.6998898	0.8762071	1.0316594	0.9653901	1.0396562
Phase-1 RCT-287	1.2379296	1.0078588	0.9783584	1.1718795	1.1520829	1.0278413	0.9880331	1.0061791	1.146569	1.2208104	1.1244864	1.0108587	0.94835	0.8705848
Phase-1 RCT-119	1.0765576	1.4023663	0.7980328	0.8785276	0.6349393	1.2747958	0.9847147	0.9491282	0.9087423	1.1121122	1.0502428	0.9757909	0.9145449	0.8978524
Thioredoxin-1 (Trx1)	1.1588246	1.0985564	1.1384573	0.9200273	1.2581404	1.0934443	0.9058038	0.86531975	0.8911324	0.8404467	1.0469868	0.9577307	1.0829806	1.2038869
Phase-1 RCT-225	2.5591788	1.3648406	1.0834298	1.3807259	3.9944038	0.9133483	1.3046439	1.3535538	1.3432908	0.8849381	1.2128373	3.1801095	1.6650081	1.3840051
Protein kinase C alpha	0.8851156	0.8764793	1.0102537	1.0762484	0.9842151	1.0300496	0.930261	1.1094604	0.9130698	0.9102957	0.9757217	0.9779588	1.1319137	0.9893307
Phase-1 RCT-87	1.5036851	1.558417	1.1882132	1.2929627	1.1018525	1.0839481	0.9432895	0.9212182	0.9735436	0.9306746	1.0143461	1.0650865	1.0825604	1.1497867
Phase-1 RCT-59	1.1816541	1.2817224	1.4672865	1.4905576	2.952709	1.0825353	1.0621262	1.051865	0.9647018	1.0979718	1.0629542	0.8823918	0.8257289	0.8758298
Cal-binding protein	0.936726	1.0258457	0.8250563	0.9345675	0.6607361	0.8661791	0.8832536	0.8866565	1.0791072	1.0733774	0.8757234	0.7482706	0.8781343	0.8210883
Phase-1 RCT-204	0.9111267	0.9899476	1.0051489	0.9046057	0.8936523	0.9620424	1.080614	0.9785676	1.0934997	1.1865572	1.0431378	1.0596333	1.0131397	1.0274487
Camitine palmitoyl-CoA transferase	3.5171864	3.0035732	1.4658041	2.188171	1.7967886	1.0469853	1.0844889	1.01117	0.9100943	1.138179	1.035553	1.1611589	1.0576135	1.0761838
B-oxoaniline DNA glycosylase	1.097319	1.0081261	0.9623749	0.980742	0.9880742	0.8997161	0.9671794	1.075637	1.060725	1.0661694	0.9283683	1.0521836	1.0913515	0.998203
H-rev107	0.8720893	0.8104222	0.8753592	0.9597423	0.9234449	0.9016785	1.0578176	0.9471087	0.8344137	0.9308553	0.9533712	1.0005459	0.88879	0.9875345
Phase-1 RCT-177	1.4227397	1.2123443	1.3434268	1.1290538	1.2993124	0.8727888	0.9897364	0.9224685	1.0253764	0.6973598	1.0031093	1.283779	0.8631486	0.9748936
Phase-1 RCT-110	0.8343279	0.8575599	0.9467166	1.0201768	0.9473477	0.9374098	1.037312	1.0219785	0.9757128	1.0050547	0.9652113	0.9231288	1.0853168	0.9039382
Phase-1 RCT-227	0.840459	1.0055481	0.8432704	0.8314482	0.6813583	1.2865214	1.8025203	1.0132759	1.2286067	1.1625408	1.240913	1.1962849	0.9940471	1.0150078
Neuropeptide Y	0.9647372	0.9666622	0.9592631	0.9071888	0.9903095	0.9892066	1.0157048	1.010097	1.0439422	1	1.0599748	0.9062545	0.985494	1.0805749
Phase-1 RCT-277	0.9475825	0.8431503	0.644836	1.0265075	0.7476132	0.9288535	0.9081618	0.8276205	1.0010785	1.1772475	1.143283	1.0313994	0.7643012	1.065428
Phase-1 RCT-229	0.8765233	0.954728	0.9906169	0.9763436	0.8954263	0.9446335	1.1001315	1.0371146	1.0145515	1.1772475	1.056379	0.928556	1.08085	0.9575524
Phase-1 RCT-34	2.4693944	1.7597872	1.2272075	1.1408653	1.0090904	1.0986434	1.0703478	1.1493808	1.4026551	0.8901727	1.1891684	1.0469079	1.43809	1.0635849
Choline kinase	1.7859397	1.3411621	1.9232041	2.068288	3.0889084	1.1524025	0.9392282	0.8888828	1.0516448	0.9098578	0.9481391	1.1818445	0.9343685	1.2065281
Phase-1 RCT-20	1.3100215	1.2312012	1.3018884	1.1288543	1.2474153	1.1002225	0.9758862	1.0342422	1.0430638	1.0476933	1.0723549	0.9688995	1.013308	1.040619
Phase-1 RCT-248	0.8750938	0.9968755	1.00111	1.2209706	0.9790316	1.0158494	0.9845895	0.9830865	0.994502	0.985486	0.9300904	0.9814531	1.0541853	1.0522253
(1) Gene expression data for 6 hour														
timepoint are presented as mean ratio of														
treatment/control for all 6 hour predictive														
genes (Table 20).														
(2) Compound and dose abbreviations as														
in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for														
compound-dose group at 72 h: yes,														
necrosis observed; no, no necrosis														
observed														
(5) Predictive gene (as in Table 20 and as														
included in Table 32)														

Table 34. Expression Data for 6 Hour Timepoint (1)														
Compound-Dose (2)	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200
Animal Number (3)	2321	2322	2323	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341
Liver Toxicity Necrosis Classification (4)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Gene Name (5)	1.0996547	0.8341616	0.8285781	1.0651655	1.0922648	0.7479399	1.0389175	1.0475538	0.9089944	0.735644	0.7706641	1.7784872	4.1913447	
Gadd153														
Interferon related developmental regulator (IFRD1) (PC4)	1.5784473	0.8766864	0.9521281	1.1416252	1.0262192	1.0505287	1.1008086	1.1515131	0.8593488	2.18344	2.7819956	2.6053054	4.7078125	
ID-1	0.9345724	0.9537039	1.2841669	0.9230764	0.9700647	0.8780122	0.831251	1.1473962	0.9748331	1.0398078	1.4901352	0.8400593	1.6863209	1.5628448
Insulin-like growth factor binding protein 1	10.201984	1.949942	1.915724	1.3218093	2.7499552	2.3119965	2.2355814	1.0887092	1.2400824	1.1144817	5.54081	1.113887	7.2956443	5.4513335
NIPK	2.3281423	1.6631947	2.8327847	1.164727	1.7091045	1.1146551	0.9578965	0.8963862	0.8994743	1.1472915	0.9823015	0.5546369	1.6890501	3.6218421
Phase-1 RCT-50	0.9965264	0.7723147	0.837535	0.7891324	0.8770608	0.8250903	0.9361803	0.8430437	0.8139131	1.1733599	1.3352808	0.9549855	4.944409	12.228047
Sarcolemmal reticulum calcium ATPase	0.9142339	0.7398658	0.6591609	0.7543346	0.8128965	0.7316823	0.9802074	0.9695594	0.9030064	1.2706072	1.3421892	2.957581	0.878492	0.910886
Phase-1 RCT-207	1.8528723	1.177977	1.2360649	1.2242993	1.4681867	1.4105413	1.2242144	1.1249889	0.9853302	1.3360201	1.6967862	0.6133941	4.559005	3.5664513
Acetyl-CoA carboxylase	1.1107398	0.8904163	0.8244892	0.8188807	1.0258019	0.9007779	0.9697701	0.8183399	0.8851501	0.7008816	0.8644386	2.7855947	0.567617	0.6394426
Cathepsin L sequence 2	2.3831332	1.9324304	1.8287347	1.7943392	1.7731409	2.0964768	1.1590776	1.0815574	1.2412051	1.007254	1.480641	0.8483314	6.8919508	2.0789898
Glucokinase	0.4516861	0.6246617	0.5576909	0.7269739	0.3971601	0.4234179	1.3270768	1.3541161	1.0781056	0.604603	0.7297077	1.3890611	0.2688426	0.5296999
Gadd45	1.966831	1.8286704	1.9349273	1.1087592	2.098856	1.8932851	0.7213792	0.968173	0.9879213	1.3360526	2.1730056	2.6994453	3.8780571	38.514282
Phase-1 RCT-18	0.6483723	0.7278831	0.8695882	0.7413792	0.8239311	0.7648718	0.8997127	0.9069237	0.8260054	1.182789	0.9767414	1.2627156	0.5888311	1.0900828
3-beta-hydroxysteroid dehydrogenase (HSD3B1)	0.8558663	0.7807798	1.020451	0.8422508	0.584767	0.6884784	1.1303773	1.1436836	0.9107903	1.1637231	1.2050658	0.5633227	1.0161211	0.8089499
Phase-1 RCT-221	1.3382692	1.2492768	1.0550431	1.3420081	1.2916902	1.40598	1.0384121	1.1539934	1.0450308	1.2387897	1.1090978	1.2215436	1.2531507	1.1089665
Heme oxygenase	2.4110518	1.1530377	0.755806	2.40087	2.5309384	1.953109	1.1563706	0.9385045	0.9272289	3.2946606	3.054832	4.908183	47.470757	57.01253
Cyclin dependent kinase 4	1.2767262	0.8975322	0.7757275	0.7427683	0.9612286	0.8543618	1.1194769	1.0054569	1.0423744	0.8879442	0.8202142	0.8813281	0.8955249	
Phase-1 RCT-75	1.9877325	1.1161382	1.2327073	1.2577907	1.2701322	1.319002	0.9265889	0.9923911	1.031938	0.8751004	1.1153481	0.8657442	1.4018989	1.3910817
Phase-1 RCT-65	1.0818929	1.4664961	1.2941734	0.9051058	1.1975101	1.0127608	1.3893318	1.0866341	1.1432387	0.9314526	0.6354988	0.3292022	1.3890532	1.667872
Cytochrome P450 1A1	0.5764142	0.6362601	0.6176596	0.5952776	0.7038136	0.6673306	0.7840971	0.5999676	0.7000001	1.192324	0.7803929	0.6580517	1.0039625	1.0667142
Peroxisomal multifunctional enzyme type II	1.9945956	1.9337581	1.8582721	1.8598974	1.7225305	2.4680795	1.3210993	1.3255755	1.2721031	0.8158523	1.0111487	0.7198774	0.4682577	0.5266339
DNA topoisomerase I	1.0816039	0.8123445	0.7682843	0.8117516	0.8388233	0.9501295	1.1830039	1.0512486	1.1277868	1.1484349	2.0884538	3.715367	0.298742	0.4297092
Focal adhesion kinase (pp125FAK)	0.6537523	0.7899053	0.7627546	0.7147601	0.7548839	0.7436317	0.9086544	0.8172565	0.8655812	1.1017176	0.9626966	1.9751055	1.0788057	0.8850282
NGF-inducible anti-proliferative putative secreted protein (PC3)	1.7038462	1.0966772	0.9887268	1.1338862	1.2199774	1.1979269	1.08044	1.0441872	1.0161572	1.2893995	2.9819033	2.615093	1.6223498	2.42805
Phase-1 RCT-82	0.5930594	0.7070903	0.6633354	0.6598671	0.7869827	0.7364691	0.9209407	0.9819508	0.8492837	1.0651476	0.686916	1.2597634	0.8827714	0.9895312
Sensescence marker protein-30	0.690469	0.6343933	0.6844554	0.5913708	0.3295118	0.4955376	1.0416205	1.266858	1.3245778	0.585047	0.9921884	1.5621766	0.2989822	0.3345364
Melanoma-associated antigen ME491	0.8928854	1.1768833	1.1099266	1.0548519	1.1472411	1.088586	1.4265038	0.8630552	0.9617887	0.8536916	1.0143875	0.8925012	1.8828344	1.6821188
Activating transcription factor 3	0.8558317	0.837538	0.8614703	0.9157264	0.8788609	0.8705517	1.113728	0.9100912	0.9018018	1.1096214	0.9853374	0.6316596	3.080833	25.819333
Tyrosine phosphatase	1.0093024	0.9084729	0.8565363	0.9505585	0.9206746	0.8895429	1.2847286	1.075295	1.015894	0.9535516	1.2077832	0.5629084	0.7340806	0.811272
Zinc finger protein	1.8228138	1.0273241	0.9785331	0.8991521	0.8560659	0.8593511	1.1133416	0.9160895	0.9568915	1.585597	2.37883	0.8517192	5.4700594	21.583532
c-myc	2.1187806	1.8631449	1.5257095	0.8941691	1.561438	1.3135252	0.9481485	0.8112546	0.9711506	1.0993483	0.9802593	1.2759346	3.9707828	2.662938
Cholesterol 7-alpha-hydroxylase (P450 VII)	0.8171367	0.6468103	0.6329349	0.6096364	0.8315015	0.6771509	2.4100943	0.8885627	0.7442218	1.1211157	0.8684611	3.253084	0.6640719	1.6800415
Ferritin H-chain	1.3253969	1.675352	1.5554856	1.2707413	1.089117	1.3237896	0.889322	0.9040417	1.0907272	0.9374969	0.8484959	0.8538694	2.082377	1.055599
Phase-1 RCT-197	0.679455	0.9596407	0.8584266	0.781686	0.9814485	0.8449809	1.4460373	1.0120059	0.9611756	1.2368873	1.00115	1.2825346	0.9682318	1.3695783
Phase-1 RCT-179	2.8465857	1.4135592	1.7396343	1.4186548	1.9355127	1.0225435	1.1987152	0.9695552	1.1152828	1.6270827	1.8402045	2.128932	1.681951	
Phase-1 RCT-15	3.1092436	1.6220695	1.5565863	1.415154	1.8251929	1.6371068	1.4680423	1.1552873	1.3121269	1.1872265	1.4284657	0.8117948	1.2752884	1.7276384
Argininosuccinate lyase	4.6747584	2.257461	2.163784	2.7580594	3.6681165	3.846397	3.2555715	1.6370827	1.2270243	1.1070614	0.6136931	2.31668	1.969421	
Phase-1 RCT-49	1.3384068	0.9298994	0.9409059	0.9159778	1.0552372	0.968761	1.179395	0.7808649	0.8149074	1.5006728	1.5669149	2.813406	3.1793488	2.3326297
Carbonic anhydrase III	0.298023	0.1577575	0.360401	0.588479	0.2283877	0.3440649	0.8058969	0.6858951	0.6850939	0.3161832	0.4789587	0.7679328	0.1421211	0.2213954

Proliferating cell nuclear antigen gene	0.9455317	0.8653094	0.7725962	0.7000924	0.9969808	0.7797875	0.98162	0.7930945	0.9126682	0.8976876	0.8089082	1.6371257	1.5708321	1.4997784
Integrin beta1	1.3656108	1.033444	0.8336152	0.9321238	1.3583691	1.2590222	1.1145693	1.0174257	1.1432487	1.212915	2.9342427	1.0960992	3.5856244	2.739436
Caspase 6	1.7040496	1.151978	0.2038767	1.2920125	1.0856743	0.9369038	1.0617986	1.072487	1.1204032	0.9114535	1.2072804	0.8295605	0.9463219	1.3151512
Phase-1 RCT-116	1.7044419	1.7303934	1.72958	1.4581916	1.61817	1.5473114	1.7672663	1.5817039	1.86618	0.6115488	0.6117787	0.2284352	0.8749169	0.8281035
Phase-1 RCT-109	1.5408211	1.2541593	1.275519	1.469945	1.3669878	1.5253252	1.4470114	1.3647778	1.2901598	1.5504164	1.8094386	2.6704357	2.1494477	1.6760525
Phase-1 RCT-71	2.187869	1.2589368	1.2598258	1.3894009	1.676622	1.4726019	1.0611848	1.2347489	1.244086	1.131044	1.2610104	1.1356494	1.2972516	1.6733831
Elongation factor-1 alpha	1.8239547	1.4228185	1.4122667	1.6975929	1.3356714	1.7175736	1.2752038	1.2120681	1.40359	0.7525337	1.1466509	2.3427007	1.2287385	1.4093816
Phase-1 RCT-169	0.917752	0.8335239	0.7773873	0.7521202	0.8086913	0.6917185	0.7179146	0.6488528	0.6190476	1.6728776	1.8617903	0.9157858	1.3354717	1.2033993
Pyruvate kinase, muscle	0.912553	0.8601898	0.3389	0.9520206	0.921088	0.8775584	0.8683176	0.863109	1.017237	1.1107763	0.8613917	0.8613917	1.871053	1.79406
Nucleosome assembly protein	0.6807067	0.6218312	0.8054949	0.7831277	0.6928482	0.6964256	1.273891	0.7910165	0.8329759	1.1388469	1.1807082	1.1388469	1.7621762	1.9327446
Phase-1 RCT-127	1.4608772	0.9363015	0.9695595	0.7510293	0.8722803	0.8111666	0.938377	0.7129249	1.7880089	1.3186321	1.3102024	2.1354961	1.6721762	1.9327446
Iron-responsive element-binding protein	1.2842793	1.8240596	1.5489758	1.4097238	1.6682738	1.6793947	1.0525795	1.7087111	0.714421	0.6698155	0.6698155	1.0867572	0.4641822	0.4861864
Phase-1 RCT-72	0.6654249	0.7733982	0.7534655	0.7031924	0.802347	0.6669027	0.8364289	0.691988	0.75995108	1.1598929	0.7874448	0.7874448	1.9189608	1.605539
Phase-1 RCT-144	1.9757348	1.1850276	0.853574	1.040978	1.3341584	1.5797241	0.9400913	0.9233254	0.9387069	1.2140448	0.9731309	1.071127	3.512054	1.8008361
Phase-1 RCT-242	0.885811	0.791901	0.7287505	0.7629717	0.9785534	0.8382109	0.9641148	0.8084815	2.2416735	2.0840216	1.8131837	2.3085923	3.3836668	
17-beta hydroxysteroid dehydrogenase, type 2	0.2159493	0.5894142	0.481402	0.7140688	0.3313084	0.3451148	0.6145118	0.4388525	0.9344531	0.6183488	0.9407538	0.8694136	0.8697096	0.5174992
Phase-1 RCT-70	0.786287	1.0665656	0.8820705	1.0351055	1.324151	1.1347275	0.9550574	0.9319589	0.8628318	1.0814879	0.8755	1.0160475	2.0784848	1.7448764
Ribosomal protein L13A	1.52151	1.1396385	1.3989338	1.4078625	1.2825325	1.3627646	1.0361149	1.2334831	1.2403561	1.1727208	1.4934365	1.6134553	1.7786049	2.062789
Cytochrome P450 2E1	0.7390931	1.1130149	1.0533737	0.8720703	0.8722912	0.7795487	1.0779967	1.0771118	1.0624764	0.7063115	0.4193142	0.7208381	0.3589626	0.6153533
AT-3	0.6174436	0.7008765	0.6499755	0.7182002	0.8058408	0.9552139	1.021551	1.0800492	1.2271212	0.5284225	0.849377	1.4046017	0.2892452	0.3067927
Phase-1 RCT-270	0.9834291	1.1652379	1.1633575	1.0940489	1.1839353	0.9852139	1.021551	1.0800492	1.2271212	0.5284225	0.849377	1.4046017	0.2892452	0.3067927
Phase-1 RCT-123	0.7578414	0.7855469	0.7853172	0.7036811	0.8002546	0.7741383	0.9332281	0.8345833	0.8444109	1.078539	0.8490867	0.8639182	0.9863658	0.862115
Alpha-2-macroglobulin, sequence 2	3.9010272	1.3892564	1.4140308	1.7044066	1.8570169	1.6258769	1.3811414	1.0855992	0.952127	1.497104	2.000779	1.2809608	1.7354816	1.7171525
Matrix metalloproteinase-1	1.3347169	1.077312	0.9206107	0.9669701	1.0346707	0.967065	1.0934616	1.9488756	1.7877173	0.8902082	1.0864856	1.2098868	2.2192885	1.0873777
Beta-tubulin, class I	1.1412523	1.3404566	1.4780536	0.968248	1.006244	1.0859166	1.3110378	1.6485544	1.6386973	0.7283505	0.4838234	0.512897	1.5877714	1.20785
Phase-1 RCT-161	0.492212	0.6182843	0.580164	0.6719332	0.6313142	0.6034442	0.919013	0.8704148	0.7768789	0.4752443	0.5330057	0.4297832	0.3533443	0.4025668
14-3-3 zeta	1.3050028	1.0551736	0.9777864	1.2110108	1.3846525	1.2110108	0.9938972	1.2689002	0.9209735	0.7193997	0.9147629	1.0793997	1.9147629	2.093452
Stem cell factor	0.7942565	0.9180558	1.3932098	0.8937483	0.7548639	1.0723841	1.0968151	1.0801704	0.6879562	0.5797728	0.7194997	0.7194997	0.7328701	
Macrophage inflammatory protein-2 alpha	2.151789	0.8808751	0.9215701	1.1774691	1.1530933	0.8278021	0.9936696	1.0451177	0.9961158	2.0376859	2.638398	1.6586162	1.7633419	2.6699385
Thymidylate synthase	0.9302471	0.8669094	0.7892742	0.6761102	0.8378952	0.7728633	0.898893	0.7807429	0.9003704	1.0457618	0.7898116	1.03352	0.8720765	1.0466972
c-Jun	1.3871436	1.5995406	1.38898	1.3281215	2.0794258	1.0179287	1.339198	1.2097919	1.194697	1.178226	0.9448812	0.8342033	1.8447593	8.084402
Superoxide dismutase Mn	1.6784772	1.2397113	1.2338262	1.0898724	1.3784454	1.1204505	1.3552031	1.255023	1.2873516	1.147757	1.4560213	2.577514	1.7073054	1.4551935
Phase-1 RCT-73	0.9253287	0.9835848	1	1.0010722	1.0421593	1.0109471	0.9286265	0.8923963	0.8530184	0.8766896	0.9333333	0.9139305	0.691861	0.7773256
Macrophage inflammatory protein-1 alpha	0.7806529	0.8382705	0.8623782	0.9778156	1.0300423	0.7422691	1.0655125	0.9977617	1.0650318	1.0718037	0.8590661	0.4559776	1.6225747	2.1227517
Phase-1 RCT-214	0.7905642	0.8760987	0.8647711	0.7188382	0.7223442	0.8528692	0.9816945	1.223886	1.3733904	0.626889	0.6358515	1.058417	0.2745062	0.4583045
NADH-cytochrome b5 reductase	1.1621958	1.230008	1.3096722	0.950516	1.0374655	1.1474973	1.1826204	1.0547508	1.1920314	0.6494751	1.3806888	0.614027	0.4387768	
Interleukin-1 beta	1.0956602	0.9960011	0.9980877	0.9280265	0.9181809	0.9555702	0.9161333	0.7698202	0.8281482	0.9755658	1.2756212	1.5582001	2.1154296	1.2801836
NADP-dependent isocitrate dehydrogenase, cytosolic	0.9316405	1.5300967	1.5082638	1.1711409	0.8654622	1.2047809	0.8840693	1.1318537	1.1169341	0.7735924	0.9043802	1.4442937	0.766187	0.8230809
Phase-1 RCT-289	1.1012769	1.0945505	1.1182117	1.1585194	1.0773658	1.1815758	1.0687849	0.9632787	0.9539801	0.808135	1.0841353	1.120116	0.7338429	0.7136167
Glutamine synthetase	1.0386727	0.870734	0.9528385	1.1147155	0.9374233	0.9192255	1.3063034	0.8764148	1.2538844	0.7621953	1.0804109	1.8305466	0.5388102	0.5860333
Phase-1 RCT-182	1.2785391	1.2880173	1.2910417	1.0824542	1.156955	1.4102608	1.0597143	1.0772256	1.0673342	0.7963047	0.7824888	1.7193425	0.4853855	0.4681138
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.6548876	0.9289145	1.0741147	1.228962	1.094108	1.3416165	1.0187544	0.9698472	1.1446311	1.062068	1.5463047	1.3830999	1.1966028	1.8469709
Extracellular-signal-regulated kinase 1	0.7390304	0.801338	0.8014678	0.8443065	0.8403818	0.6572261	1.012763	0.8919168	1.0007282	0.8355094	0.7028729	0.3836779	0.731225	0.6089566
Emerin	0.980049	0.8360968	0.8904551	0.8565506	0.9428818	0.9451518	1.0161226	0.9191657	0.886896	0.9432033	1.1907893	0.769429	0.8219273	0.9654654
Phase-1 RCT-78	0.9503455	0.8928123	0.8291077	0.9522308	0.9427583	0.9550169	0.9882413	0.9589797	1.015894	0.9827404	0.8378617	1.3197054	0.8066924	0.8176216
Phase-1 RCT-212	0.9570021	1.0007759	0.9769918	0.9145848	0.9466004	0.9394206	0.9440548	0.9722207	0.958231	1.046214	0.8155718	0.7014004	1.0733169	0.8866604
Phase-1 RCT-188	0.6199149	0.8662243	0.7177544	0.837423	0.7648168	0.9161477	0.9421744	0.966176	1.1584037	0.926237	1.5604505	1.5763488	0.5038708	0.591979
Lysyl hydroxylase	1.2107585	1.1008449	0.969599	0.9010016	0.9487892	1.0381304	1.1233381	0.958117	1.0352231	0.7987726	0.9695911	1.1688845	0.7328628	0.808592
Phase-1 RCT-55	0.8097586	0.8096507	0.7681305	0.8103089	0.7867369	0.804613	0.6326381	0.6204104	0.6223261	0.963482	0.7876606	0.6819216	1.5112758	0.9790343

MHC class I antigen RT1.A1(f) alpha-chain	0.8896583	1.4078712	1.3185018	1.0934252	1.3201215	1.0681044	1.4829036	1.2983035	1.1754553	1.0189772	0.5579769	0.2741749	1.6154394	1.1893224
Phase-1 RCT-40	0.9448729	1.0164052	0.9807278	0.9902728	0.8077492	0.9760839	1.1832219	0.9303025	1.2809854	0.7026357	1.2740551	1.8200084	0.5969545	0.5337219
Cyclin G	1.0329841	0.8815802	0.8815802	0.8840803	1.3927739	0.7824177	1.4571083	0.9440112	1.1094242	1.1097889	1.5083688	1.2410102	4.5286677	2.3986677
Peroxisome proliferator activated receptor gamma	0.6912981	0.8500497	0.7911545	0.8573994	0.9906841	0.699567	0.8038329	0.8392525	0.8190694	1.058116	0.6842327	0.6390063	0.9299547	1.3657857
Phase-1 RCT-280	0.9534001	0.8615733	0.8786874	0.8189229	0.8114135	0.7610847	0.9692596	0.9335378	0.8376858	1.3125235	1.1449205	0.8824546	0.6763532	0.7732886
D-dopachrome tautomerase	1.384319	1.7912011	1.4327333	1.7303877	1.282589	1.8580717	1.0338011	1.0794488	1.1520737	0.6786878	0.6452309	1.49937	0.6775488	0.4741886
Phase-1 RCT-287	1.8417862	1.2579132	1.1991845	1.2757661	1.4070396	1.3527446	1.625185	1.1376208	1.0940828	0.8337889	1.0691193	0.9145294	0.4194513	0.7038358
Phase-1 RCT-119	1.5167423	0.9695211	0.9043258	1.0774771	0.9986262	0.947048	1.0505008	0.9583323	1.0312477	1.0988946	1.0674233	1.0431154	0.8855313	0.7514412
Thioredoxin-1 (Trx1)	1.2181594	1.2365285	1.1742849	1.1787622	1.0091839	1.0936756	1.0505008	0.9583323	1.0312477	1.1465044	1.8762884	2.3035288	2.1524622	1.6517862
Phase-1 RCT-225	0.801233	1.9104548	1.4282059	0.4768281	0.3967885	0.6774557	1.3270012	1.2174518	1.1149601	1.2236041	0.8541667	1.0149516	7.5371675	8.013704
Protein kinase C alpha	0.8601613	0.7563042	0.7039489	0.6994292	0.61805	0.7225568	0.8838576	0.9058563	0.8665792	0.8792956	0.9532117	2.1292083	0.8836915	0.9123103
Phase-1 RCT-87	1.2923447	1.2091386	1.1268918	1.0017392	1.07127	1.213759	1.1031731	1.028194	1.0208054	0.8802062	0.806773	1.4648972	0.5573033	0.7969732
Phase-1 RCT-59	1.8374493	1.0248809	1.0004367	1.2642226	1.5928037	1.4063356	1.3874239	1.1663467	0.8516667	1.3083559	0.8772284	0.8086448	1.2025608	0.8403303
Ca ²⁺ -binding protein	1.7470182	0.7209359	0.8697181	0.9409187	0.5876558	1.017071	0.9160246	0.7859813	0.8804129	1.1052866	0.9802368	0.9863656	0.5723452	0.4712398
Phase-1 RCT-204	0.8620059	0.9292848	0.9147794	0.8126935	0.9375712	0.9099326	1.0200256	0.8714277	0.9083083	1.0133529	0.8772284	0.8086448	1.2025608	0.8403303
Camitine palmitoyl-CoA transferase	1.6289271	1.7968493	1.5022124	2.0522587	2.8468359	2.903596	1.6076658	1.2962945	0.9913523	1.0922921	0.8705608	0.4183972	1.1406351	1.7792885
B-oxoguanine DNA glycosylase	0.6758716	0.7544016	0.8896413	0.6357594	0.8341391	0.689709	0.8869995	0.6865799	0.7590508	0.9588839	0.7817398	0.8435737	0.7359022	1.011185
H-rev107	0.7940808	0.7864425	0.8106061	0.7153174	0.7776324	0.7840541	0.9012175	0.853878	0.8700699	0.7340477	0.8326667	0.8259419	0.6086437	0.6959423
Preproalbumin	2.1478064	1.8562509	2.0377367	1.9479977	1.498921	1.7894061	1.1339426	1.2445313	1.2092645	0.8684559	1.1100718	0.321097	0.5361729	0.4758639
Phase-1 RCT-177	1.7963465	1.42277	1.5858277	1.3662238	1.4226948	1.6020895	1.080225	1.2103966	1.1801634	0.7705215	1.012383	0.5297087	0.5155912	0.6399711
Phase-1 RCT-110	0.5724095	0.674163	0.6833774	0.5994517	0.7201641	0.8088674	0.8139944	0.7637737	0.7626097	0.9499276	0.8761396	0.8461012	1.022452	1.1059788
Phase-1 RCT-227	2.2253728	1.7776005	1.6286176	1.6157794	1.6271541	1.8645541	1.3053432	1.1182265	1.088273	0.9499276	0.8761396	0.8461012	1.022452	1.1059788
Neuropeptide Y	0.6518005	0.7220948	0.7173794	0.6852931	0.7889586	0.7619904	0.8015558	0.7919818	0.745768	1.0361329	0.910638	1.3242875	1.5928048	1.8669846
Phase-1 RCT-277	0.9123513	0.9365035	0.8474994	0.8244242	0.8088683	0.8648928	0.806389	0.8494942	0.9089431	0.8340284	1.003982	1.1922239	0.6185063	0.6868697
Phase-1 RCT-229	0.543361	0.6990707	0.6846517	0.6502727	0.7174652	0.8808728	0.830375	0.78214	0.751112	1.1212664	0.704383	0.6981917	1.0038159	1.1605916
Phase-1 RCT-34	0.6387801	1.5881293	1.3183023	1.0276324	1.0787803	1.2954007	1.0674654	0.9526011	1.2105337	1.2349437	1.1032833	1.520847	8.251641	6.081258
Choline kinase	0.874293	1.4916626	0.8799122	0.3603265	0.8254278	0.6908379	1.0818926	1.6725014	1.0950981	1.3472157	0.9203776	0.4187047	3.7808682	6.831563
Phase-1 RCT-20	0.7371658	0.8302786	0.8630465	0.8743954	0.8978444	0.8939894	0.9145553	0.8375908	0.8401632	1.043185	0.7252288	0.6511919	1.3701224	1.9221274
Phase-1 RCT-248	0.6712309	0.7836323	0.754254	0.8458698	0.9020492	0.8488089	0.9892739	0.7937995	0.8284314	1.3055539	0.8568236	1.1289353	1.5496231	1.2461208
(1) Gene expression data for 6 hour timepoint are presented as mean ratio of treatment/control for all 6 hour predictive genes (Table 20).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 20 and as included in Table 32)														

Table 34. Expression Data for 6 Hour															
Timepoint (1)															
Compound-Dose (2)															
Animal Number (3)															
Liver Toxicity Necrosis Classification (4)															
Gene Name (5)															
Gadd153															
Interferon related developmental regulator (IFRD1) (PC4)															
ID-1															
Insulin-like growth factor binding protein 1															
NIPK															
Phase-1 RCT-50															
Sarcoplasmic reticulum calcium ATPase															
Phase-1 RCT-207															
Acetyl-CoA carboxylase															
Cathepsin L sequence 2															
Glucokinase															
Gadd45															
Phase-1 RCT-18															
3-beta-hydroxysteroid dehydrogenase (HSD3B1)															
Phase-1 RCT-221															
Heme oxygenase															
Cyclin dependent kinase 4															
Phase-1 RCT-75															
Phase-1 RCT-65															
Cytochrome P450 1A1															
Peroxisomal multifunctional enzyme type II															
DNA topoisomerase I															
Focal adhesion kinase (pp125FAK)															
NGF-inducible anti-proliferative putative secreted protein (PC3)															
Phase-1 RCT-82															
Serpin family B member 1 (PC3)															
Melanoma-associated antigen ME491															
Activating transcription factor 3															
Tryptophan hydroxylase															
Zinc finger protein															
c-myc															
Cholesterol 7-alpha-hydroxylase (P450 VII)															
Fertilin H-chain															
Phase-1 RCT-197															
Phase-1 RCT-179															
Phase-1 RCT-15															
Argininosuccinate lyase															
Phase-1 RCT-49															
Carbonic anhydrase III															

Table 34

Proliferating cell nuclear antigen gene	1.3992065	1.4459836	1.3589199	1.7917043	1.9688527	1.9492141	0.9559884	1.0392887	1.0753464	1.0233837	1.0582508	1.0332854	1.440239	0.7330231
Integrin beta1	5.58679	5.637676	5.575098	11.639049	13.900116	14.06068	1.030491	1.0791888	1.2620445	1.6348858	1.7152888	1.4879615	2.1966462	0.9875876
Caspase 6	3.4051418	3.962217	3.0601647	7.7323364	7.6128324	6.7454555	1.0213523	1.0399805	1.1597272	1.2146997	1.3018749	1.2252991	1.327785	1.3398557
Phase-1 RCT-116	1.2995191	1.3800625	1.3761586	1.4826359	1.2803501	1.2546318	2.9379618	1.9549428	2.1191454	1.851129	1.1273928	0.7562825	1.1638911	1.1638911
Phase-1 RCT-109	1.3698624	1.2746289	1.2012031	1.5956453	1.4281839	1.3314837	1.2302774	1.8220774	1.1230259	1.0217618	0.8718144	1.090925	1.1919881	0.853956
Phase-1 RCT-71	1.2983922	1.2536311	1.2556036	1.3095739	1.6219091	1.4555721	1.1963665	1.2169597	1.1747605	1.2167754	1.2744727	1.4593581	1.1762391	0.850976
Elongation factor-1 alpha	1.4109732	1.5648483	1.2123816	1.6647105	1.6185483	1.7327053	0.7960954	0.7539177	1.0056561	0.944284	0.9122947	1.1391783	1.147543	1.326354
Phase-1 RCT-169	2.0839918	1.5128863	1.4282494	1.4098899	1.2869285	1.4033358	1.1909897	0.9855387	0.8199591	1.1758924	1.0246239	0.9600401	0.8769827	1.411370
Pyruvate kinase, muscle	1.9241703	1.7307527	1.737322	3.4254837	3.286254	2.8736959	0.9763188	1.0234458	0.9824458	1.310553	1.1250604	1.2651156	1.438451	1.125991
Nucleosome assembly protein	0.873108	0.5931408	0.9263871	0.496106	0.4596022	0.5580892	1.2873944	1.1155065	1.3046411	0.4509274	0.6091545	0.620899	0.6249721	1.0983706
Phase-1 RCT-127	1.8482924	1.5943937	1.4628253	1.8463186	1.7971846	2.2165473	1.0937627	1.1826007	1.185428	1.6227692	1.1619661	1.3927568	1.600424	1.043475
Iron-responsive element-binding protein	0.6348712	0.6280296	0.6875636	0.6063271	0.522027	0.5200608	0.7320943	0.775624	0.8603781	0.950924	0.950924	1.0993336	0.8907909	0.933073
Phase-1 RCT-72	1.7562784	1.6021874	1.7512926	2.1262965	2.0971485	2.139062	0.9696162	1.3251092	0.9330981	1.2209156	1.0102443	1.015847	0.9789583	1.1464983
Phase-1 RCT-144	2.5060542	2.4134476	2.3163002	3.6047573	3.9221654	4.2120833	1.045583	1.0295572	1.4272898	1.3024839	1.0295275	1.2864944	1.5411105	0.8180647
Phase-1 RCT-242	1.8941776	2.8681173	2.1463683	3.5348887	5.8996334	4.5911546	1.3688867	1.2780957	1.0042795	1.5628116	1.1540312	1.0435572	1.2028746	0.8270812
17-beta hydroxysteroid dehydrogenase, type 2	0.5885319	0.4408018	0.9135144	0.4176675	0.3611446	0.5247926	1.9652855	1.6542811	2.0545876	0.310296	0.4121931	0.8468375	0.3620772	1.0858507
Phase-1 RCT-70	1.3431274	1.385344	1.3367865	1.8658892	1.8379011	1.4796546	1.0849639	1.0278782	1.0837983	1.16406	1.0628892	1.2148372	1.0299667	1.4420124
Ribosomal protein L13A	1.4366585	1.2794713	1.170712	2.0106037	1.5940348	1.5394613	0.8054659	0.8047739	1.1515516	1.1293737	1.0434378	1.163287	1.173489	1.214916
Cytochrome P450 2E1	0.34987	0.5508418	0.5568751	0.459387	0.3529421	0.3069493	0.6867144	0.9488558	0.8184056	0.6181762	0.9273856	0.9631865	0.7051388	0.6660162
AT-3	0.900798	0.928784	0.9036409	0.7521226	0.8791553	0.7845656	1.0431468	1.1145523	0.9802331	1.0087068	1.0246154	0.8987333	1.068324	1.1539075
Phase-1 RCT-270	0.4227928	0.5645648	0.601451	0.3714876	0.3516288	0.3335138	0.6805913	0.7484272	0.7107219	0.7345905	0.7220982	0.7418329	0.6538084	1.1333848
Phase-1 RCT-123	0.9075536	0.9079689	0.9087525	0.7631707	0.8026587	0.8739291	1.0321673	1.0894202	0.9182522	0.9286577	0.983676	0.8988334	0.9185084	0.7769177
Alpha-2-macroglobulin, sequence 2	1.062175	1.2175993	1.086588	1.0451134	1.034116	0.9544697	0.8083725	0.7423661	0.6533154	1.1841588	1.0675273	1.1136978	1.1515889	0.752406
Matrix metalloproteinase-1	1.5778139	1.8503144	1.6198367	3.1427984	2.6413348	3.2151663	0.9430371	0.84928382	1.1798382	0.8168539	1.1973447	1.0425521	0.9651782	0.9651782
Beta-tubulin, class I	2.0826967	2.007472	1.943834	3.4189525	2.8958285	2.3575835	1.647443	1.0284555	1.8121955	1.1010879	0.9217289	1.1136973	1.0944594	0.6796358
Phase-1 RCT-161	0.3406974	0.5150338	0.5795457	0.4771628	0.5360016	0.49534	1.2825333	1.2073402	0.8442153	0.681513	0.7327951	0.6350784	0.6350784	0.9153817
Phase-1 RCT-161	1.380145	1.368735	1.354112	1.8711747	1.6428375	1.9442023	1.7373629	1.8663462	0.8915179	0.9684742	1.0023837	1.124685	0.9395816	0.9395816
Stem cell factor	0.4953751	0.7185977	0.6786682	0.4406641	0.4377355	0.3629124	0.9345752	0.966133	1.0268097	0.3445408	0.513709	0.5661957	0.2215727	0.5132113
Macrophage inflammatory protein-2 alpha	1.674307	1.7014763	1.8468084	2.519656	2.2259827	2.1930737	1.10924	1.2013862	1.4419484	1.3694553	1.0956607	1.1506662	1.2285861	1.1066482
Thymidylate synthase	0.6122141	0.5049558	0.5152879	0.5316984	0.5984195	0.6110783	1.1583619	1.112128	1.0984017	1.1336917	0.8667154	1.0024775	1.1142136	1.2201033
c-Jun	1.6744564	1.9502923	1.9512099	2.807757	2.347875	2.213561	2.3511446	1.4565346	1.5238326	1.6697975	1.3991966	1.208371	1.2163249	1.0891458
Superoxide dismutase Mn	1.8537257	1.6785889	2.1623943	3.5460587	2.7468645	3.369079	1.0707496	0.9487221	1.3575883	1.2195308	0.997136	1.1485788	1.0753816	0.8297366
Phase-1 RCT-73	0.8184901	0.8025156	0.762677	0.6080071	0.6664004	0.662812	0.8525065	0.9848555	1	0.7375851	0.8363152	0.8391286	0.8399628	1.197748
Macrophage inflammatory protein-1 alpha	1.662898	1.6200022	1.8087444	1.727355	1.4409935	1.6883032	1.4175925	1.2782801	0.9831984	1.3797879	1.5101252	1.141878	1.0564977	0.9866203
Phase-1 RCT-214	0.6621282	0.7203413	0.6400244	0.4267588	0.5187004	0.4137026	1.0126282	1.0271447	1.205471	0.9266864	0.9358127	0.7303777	0.690338	1.0903677
NADH-cytochrome b5 reductase	0.7332569	0.645074	0.772857	0.6040322	0.5932336	0.5836774	0.694225	0.7375527	0.8216204	0.9240202	0.8384075	1.0715731	0.7352884	0.8686571
Interleukin-1 beta	1.7234089	1.9688027	1.7254527	3.1537135	2.6244602	3.354438	0.9295259	0.8359478	1.0747553	1.1811258	0.8399368	1.1410061	1.0731726	0.912523
NADP-dependent isocitrate dehydrogenase, cytosolic	0.7113699	0.7278209	0.711077	0.4627577	0.5217453	0.3940006	0.6638713	0.688113	0.9384422	0.6731242	0.8618017	0.8695845	0.7619873	1.0742916
Phase-1 RCT-289	0.75779	0.7800196	0.8038861	0.4953911	0.5438005	0.5764203	0.8041027	0.7676363	0.7185834	0.7084163	0.9003491	0.8787054	0.9052573	0.6395382
Glutamine synthetase	0.491175	0.5321041	0.4565988	0.679283	0.6095827	0.5910178	0.6528148	0.5690295	0.9798326	0.6682612	0.7070361	0.868267	0.8769687	1.1746923
Phase-1 RCT-182	0.4775423	0.6649774	0.6687151	0.5863551	0.4173144	0.3903698	0.7850449	0.9033766	0.7684806	0.8438702	0.8454312	0.7926207	0.876785	1.1865878
Ubiquitin conjugating enzyme (RAD 6 homolog)	0.9807192	1.4882806	1.1661017	1.9029436	1.7714611	1.635868	1.0578318	1.0162841	1.0737911	1.1992824	1.3187292	1.0738155	1.2950537	0.80611
Extracellular-signal-regulated kinase 1	0.4273931	0.6328286	0.5707476	0.3755559	0.3917442	0.39774	0.84795	0.8102462	0.7158088	0.652395	0.6043235	0.609538	0.18269	0.592237
Ermfin	0.94218	0.949385	0.9778266	0.7417402	0.8882057	0.7879438	1.0575026	1.0605819	1.1607376	0.8870008	1.0237916	1.0327363	1.0028857	1.191145
Phase-1 RCT-78	0.7445814	0.8847877	0.8493385	0.6596285	0.675832	0.6908882	1.0651649	0.8867514	1.0039544	0.7495351	0.9176893	0.8730167	0.9323676	0.928580
Phase-1 RCT-212	1.5980073	1.3766545	1.8949147	4.0689783	2.5560122	2.3504655	1.2218957	1.1195348	1.1763489	1.1240871	1.0815478	1.0319655	0.9371655	0.777012
Phase-1 RCT-168	0.8004894	0.946668	0.900247	0.7805905	0.9129972	0.8111624	0.7030972	0.718448	0.9146082	0.679588	0.7969258	1.139834	0.723093	0.723093
Lysyl hydroxylase	0.6494552	0.6633485	0.6113004	0.9126147	0.7261457	0.718063	0.7185187	0.6534534	0.8343957	0.6563584	0.8276865	0.8891613	0.7564352	1.092566
Phase-1 RCT-55	1.4592545	1.6486941	1.8187386	2.0816403	2.0897963	2.536242	0.9593662	0.9936612	0.9809362	1.8404183	1.1585383	1.0314525	0.7500727	0.8151295

MHC class I antigen RT1.A1(i) alpha-chain	1.8027383	1.5763335	2.1866572	2.4535513	2.1532924	1.9826437	2.1449192	1.4497671	1.8760674	1.4781014	1.2152092	1.2089397	1.0774136	1.0842497
Phase-1 RCT-40	0.7205404	0.707553	0.8111039	0.5432568	0.5892958	0.5892958	0.6229137	0.6459498	0.6521928	0.7067574	0.8119471	0.822185	0.822185	1.0852585
Cyclin G	1.5011126	1.5073917	1.5718965	2.348219	2.5908928	3.1865892	2.723597	2.065647	1.8833616	0.8291581	0.8702041	1.0424551	0.8636932	0.8775439
Peroxisome proliferator activated receptor gamma	0.8646238	0.5765904	0.5458802	0.4515298	0.5421776	0.4928039	1.3089945	1.3342992	1.1436195	1.2041274	0.8344921	1.049409	0.9426634	1.3222738
Phase-1 RCT-280	0.8993338	0.8476288	0.6449291	0.4056287	0.5974889	0.5361142	1.060417	1.1102597	1.0751228	0.7834436	1.1332078	0.8093881	0.8680879	1.0887243
D-dopachrome tautomerase	0.8205115	0.6639308	0.6627238	0.523486	0.5032801	0.5527148	0.6528705	0.6867033	0.9294791	0.7719542	0.7489539	0.8316114	0.8137146	0.7590511
Phase-1 RCT-287	0.8884646	0.9417581	0.8268098	0.6728452	0.815438	0.6836649	0.6799559	0.8218606	0.9722557	0.7767792	0.9288881	1.0505296	0.9881942	1.1592729
Phase-1 RCT-119	0.77737	0.9768946	1.1320573	0.448792	0.4975044	0.5205638	0.5668562	0.7977964	0.4444278	1.1775827	1.5250154	0.9430978	1.0476298	1.8647816
Thioredoxin-1 (Trx1)	1.4850017	1.5040743	1.3918958	1.9179963	1.8905054	1.745985	0.7870935	0.7398792	0.9447732	1.1122036	0.8405528	1.0914489	1.1118892	0.8823707
Phase-1 RCT-225	3.3056962	2.274617	3.7255003	8.37507	6.0022345	5.98821	1.9433713	1.7566609	1.5543699	1.3099439	1.3771476	1.2915497	1.0569124	0.7431795
Protein kinase C alpha	0.9899713	1.1077287	1.061545	1.1903932	1.1750414	1.1700243	1.045463	1.0433652	0.9538557	0.9333139	0.9760211	0.9760211	0.9760211	1.081073
Phase-1 RCT-87	1.1588528	0.9832309	1.0200373	0.8261702	0.9573354	0.8298392	0.7887006	0.9529604	1.0964235	0.9861746	0.9804093	0.9733981	0.9292941	0.8236208
Phase-1 RCT-59	1.0576165	1.0359329	0.940391	0.8151788	1.0401115	1.1751164	1.6581818	1.4642415	1.1417861	1.5161198	1.3984022	1.3945748	1.3199365	1.0720131
C4b-binding protein	0.7300496	0.7454422	0.7448737	0.9059584	0.6723028	0.6336272	0.8072755	0.7506889	0.813801	1.4916167	0.8459799	0.8954152	0.7993727	1.1850541
Phase-1 RCT-204	0.8643243	0.8817229	0.9129091	0.8214892	0.7521097	0.7524658	1.0048233	0.9517453	0.8797809	0.9322174	0.9458528	0.9514657	0.9374348	0.8564882
Carbonyl palmitoyl-CoA transferase	0.8990353	0.9224328	0.8629154	0.444256	0.4823133	0.4751923	2.0138456	1.8571333	2.1659138	1.1256486	1.3882723	1.1460083	1.118432	1.0043429
B-oxoguanine DNA glycosylase	1.0607635	0.8456528	0.8804722	0.8724565	0.931313	1.081931	1.0713483	1.1141229	1.0104282	0.9755223	0.9689392	0.8869928	0.9963863	1.2477132
H-rev107	0.916499	0.7818578	0.8482916	0.8757867	0.9324182	0.9368123	0.9316804	0.9554786	0.8941421	0.9848268	0.9640605	0.8534088	0.9015765	0.9542361
Preproalbumin	0.8304126	1.1711377	0.7312804	0.4071997	0.8350648	0.7280483	1.5836138	1.1889983	1.3381602	0.3989481	1.1725336	0.9774386	0.9081649	1.3473572
Phase-1 RCT-177	0.7808749	0.8198223	0.7508913	0.6516799	0.8237008	0.6327945	0.7695812	0.8614304	0.9857058	0.6785955	0.7430509	0.9552252	0.8574981	1.3310513
Phase-1 RCT-170	0.9430677	0.858835	0.9506649	0.8843915	0.9034989	0.9026997	1.1207397	1.0881591	0.9949583	0.9392828	1.0219705	0.8882209	0.9400039	0.8371259
Phase-1 RCT-227	0.8760763	0.8568358	0.8134082	0.6889421	0.6528188	0.7341505	1.0027298	0.9843731	0.9979506	0.702757	0.9848183	0.9689232	0.9163448	0.9643975
Neuropeptide Y	1.014942	1.0985085	1.0413741	0.9498293	1.0001891	0.9964304	1.0656508	1.6092019	0.8956645	0.9140371	0.9542439	0.9485049	1.0375732	0.9073355
Phase-1 RCT-229	0.9223269	0.7583156	0.7696189	0.4978741	0.5991657	0.764937	0.7127979	0.7600468	0.857635	0.7392179	0.7106348	0.7846276	0.8019261	0.8010684
Phase-1 RCT-277	0.9155199	0.9426535	0.9398429	0.8226131	0.8385363	0.839009	1.0952379	1.1376607	0.9548941	0.9073708	1.0007855	0.9151645	0.9887908	0.8630218
Phase-1 RCT-34	1.5898441	2.4088078	3.02467	2.300364	2.348732	3.38625	1.4910659	1.2971586	2.2257657	1.6183391	1.1257191	1.6556021	1.6095699	0.9728746
Choline kinase	1.3510892	1.6978487	1.3622925	1.4661915	1.768377	1.7108403	1.1193753	1.0899079	1.0664937	1.2478535	1.0859207	1.2732766	1.1234984	0.5912794
Phase-1 RCT-20	1.340057	1.4144884	1.3475461	1.4472241	1.508543	1.3992178	1.038178	1.1795557	1.063569	1.1103442	1.1142442	0.99981	0.9377896	1.1781793
Phase-1 RCT-248	1.1528746	1.1174567	1.0723118	1.3250748	1.2372736	1.1092035	0.9228208	0.9470415	1.113051	1.0963055	1.0058175	0.9894666	1.0463463	0.8796322
(1) Gene expression data for 6 hour														
limpoint are presented as mean ratio of														
treatment/control for all 6 hour predictive														
genes (Table 20).														
(2) Compound and dose abbreviations as														
in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for														
compound-dose group at 72 h: yes,														
necrosis observed; no, no necrosis														
observed														
(5) Predictive gene (as in Table 20 and as														
included in Table 32)														

Table 34. Expression Data for 6 Hour Timepoint (1)

Proliferating cell nuclear antigen gene	0.8010973	0.6425847	1.1095594	1.4573044	1.2800853	1.0867621	1.0850874	1.0372772	1.3832303	1.2763162	1.033595	0.9915773	1.1778843	1.1405118
Integrin beta1	0.8914644	1.652007	4.239597	2.9845393	5.7773447	0.8929995	0.8970035	1.0962051	0.9572582	1.0701771	1.0992563	1.2558843	1.1401267	1.2200412
Caspase 6	1.0795299	1.5765334	2.7078695	2.180241	2.897335	0.8565173	0.8945893	1.0106057	0.8008647	1.0239257	0.9371974	0.8797274	0.8247346	1.0478537
Phase-1 RCT-116	0.9335246	0.9894401	1.1422778	1.0938298	1.3175815	1.135494	0.9426499	0.8665859	0.8665859	1.1610253	0.7470042	1.1990987	0.6992429	0.9772598
Phase-1 RCT-109	0.9139678	1.0050579	0.9386721	0.9386721	1.1796324	0.9675121	1.0216907	1.0670538	1.0479619	0.959282	1.057161	1.5693303	1.8476527	1.6787329
Phase-1 RCT-71	0.7249302	0.7228908	0.9070039	0.9619426	1.0990123	0.8978355	0.8778606	0.9874322	0.8550908	0.9017765	0.927092	0.9488192	1.0501238	1.0651696
Elongation factor-1 alpha	1.1669997	1.3890283	0.9479592	1.037878	1.2201952	1.0037752	1.0774785	1.1615913	1.0138976	1.0486158	1.2029771	1.0200361	1.463058	0.9113765
Phase-1 RCT-169	1.2170441	1.0586793	1.0043831	1.0007727	1.0552884	0.7101499	1.0227742	0.8380023	0.6616225	0.940307	0.8146594	0.940307	0.8183247	0.9428671
Pyruvate kinase, muscle	1.0220395	1.153401	1.4836667	1.3940432	2.3149333	0.7132008	0.8933905	0.871881	1.1697266	1.0343258	0.6498295	1.1389663	0.854031	0.9773169
Nucleosome assembly protein	1.8725564	1.2100004	1.4301475	0.9912605	0.8731886	0.729694	0.5878292	0.7201088	0.6301301	0.6103741	0.7249172	1.2080947	0.9989293	0.8471467
Phase-1 RCT-127	0.91217	1.1790904	1.0916244	1.193346	1.3830885	1.2742819	1.6758145	1.3289052	1.4433341	0.9583329	0.92466738	0.7991654	1.2295078	1.1102518
Iron-responsive element-binding protein	0.9335291	1.0021656	1.1025468	1.0896357	0.9618915	0.7290085	0.9552711	0.6928353	0.9274483	0.9371748	0.9041993	1.3774485	1.3186419	1.2631097
Phase-1 RCT-72	1.0443296	0.8009555	1.1727227	1.1287936	1.1589708	0.8790699	0.9629629	1.0580403	0.8638771	1.0756698	1.1189767	0.9157062	0.8688906	0.9227018
Phase-1 RCT-144	0.9444373	0.9492301	1.0196669	1.0409471	1.0936794	1.4811122	1.760144	1.9925249	1.682985	1.859191	2.1783988	1.2780149	1.506084	0.91756432
Phase-1 RCT-242	0.8831469	0.7376085	0.9913535	1.0252755	1.0009165	1.5575988	2.30323	4.9724168	3.7794254	6.070761	4.648406	0.9758751	0.7302912	0.9303653
17-beta hydroxysteroid dehydrogenase, type 2	1.9170269	1.2345488	1.4458262	1.034977	0.9042218	0.2355756	0.1358948	0.1311868	0.1300119	0.1778954	0.0978842	1.450688	1.0072777	0.9387043
Phase-1 RCT-70	1.4256423	1.1970419	1.1723912	1.1445707	1.097473	0.9919594	0.9467713	0.918063	0.9006851	1.0513812	1.0233526	1.100938	1.0877193	1.2297233
Ribosomal protein L13A	1.076386	1.3602656	1.1369365	1.3774645	1.7437706	1.0061979	1.0286408	1.0786726	1.1738036	0.9829432	1.1535915	1.7683101	1.7414174	1.6344805
Cytochrome P450 2E1	0.6964331	0.4593764	0.5667268	0.5373628	0.8894759	1.1737031	0.8157266	0.9180553	0.7208829	0.8410477	0.6841721	0.8991042	0.5652058	1.0769557
AT-3	1.0881056	1.2426351	1.0184362	0.9718655	1.088005	0.9846723	1.2640461	0.9036488	1.1403708	0.9550143	0.8208142	0.9548324	1.061699	1.0325801
Phase-1 RCT-270	1.101815	1.0454168	0.8057656	0.6389422	0.7084616	0.7014405	0.4476357	0.8484456	0.5616964	0.5611181	0.6147419	0.5865986	0.7882578	0.6843891
Phase-1 RCT-123	0.8459472	0.7076557	0.9484276	0.9002728	0.9271685	1.0168759	1.0553854	0.9339474	0.9256986	1.0203613	0.8936387	0.9630592	0.8294137	0.9803798
Alpha-2-macroglobulin, sequence 2	0.8263649	0.7336202	0.7517352	0.8389691	0.7402446	1.1745716	1.2089303	1.0340519	1.2915121	1.4530298	0.9990516	0.7747713	1.0868951	0.9965895
Matrix metalloproteinase-1	0.9857169	1.2091138	0.9800668	1.1738241	1.4422779	0.7967653	0.9389062	1.0210088	1.1975784	1.1657771	1.1471946	0.915849	1.0194211	0.9277153
Beta-tubulin, class I	0.7394818	0.7929099	0.7704446	0.7849309	0.9101544	1.6775394	1.611548	2.1602948	1.8103988	1.301003	1.8635764	1.1354531	0.5927039	0.8893524
Phase-1 RCT-161	0.8937011	0.8659679	0.8909661	0.923851	0.8336379	0.9396962	0.9400846	0.9232262	0.8465597	0.7725709	0.8508648	0.5625117	0.8639725	0.9329725
14-3-3 zeta	0.8022784	1.0374125	1.3065394	1.1916461	1.3608718	1.1379418	1.1328411	1.2869804	1.2892867	1.2460713	1.5517802	1.2941656	0.8575548	1.1787345
Stem cell factor	0.7100064	0.5766698	0.3998237	0.3254117	0.3033344	1.2216768	0.9465219	0.9512779	0.7574608	0.6915446	0.8366632	0.8919016	0.8942381	0.9643994
Macrophage inflammatory protein-2 alpha	1.2004474	1.122252	1.7133615	2.5194697	2.5560973	2.423721	3.6259134	1.5741837	6.810779	5.254996	2.702859	1.3815868	0.7928991	0.7332862
Thymidylate synthase	0.8357665	0.838978	1.1650736	0.6426464	0.5548663	0.9653336	0.9737663	0.9324723	1.8106767	1.848705	1.143121	1.0171559	0.8190426	0.9500609
c-Jun	0.9802616	0.9801364	1.7872092	1.83753	1.6349284	1.5117762	1.7973676	0.8263295	1.4880482	1.859949	1.1067829	1.2352223	0.8755413	0.985602
Superoxide dismutase Mn	0.782531	1.0818027	1.1022016	1.238344	2.2081156	1.9049118	3.100952	2.1785557	3.1054919	2.5423762	2.5245397	1.3782283	1.7289521	1.3459438
Phase-1 RCT-73	1.3256844	1.2902198	1.152171	1.0634649	0.9158518	0.8790951	0.8796079	0.8896431	0.8789521	0.8488047	0.9163806	1.1911748	1.0821598	1.1916877
Macrophage inflammatory protein-1 alpha	0.9566952	0.9338902	0.9482654	0.9452609	1.0647439	1.0385449	1.1628245	0.8031789	1.5727121	0.7559396	1.2641194	1.0470981	0.6532739	0.9808293
Phase-1 RCT-214	1.1875656	1.1366471	1.1611977	1.1408759	0.8960642	0.8748335	0.9874226	0.7348059	0.5833508	0.8406636	1.0219152	0.8823368	0.6968684	0.9326825
NADH-cytochrome b5 reductase	0.8898684	1.018042	0.8203328	0.7781595	0.9137035	0.8025321	0.6706873	0.9815097	0.6495572	0.6188718	0.7931231	0.7872851	0.7973765	0.7505189
Interleukin-1 beta	0.9383507	1.1372198	1.0331032	1.1905713	1.492238	1.1685706	1.3035988	1.3087657	1.4386387	1.1902502	1.4913352	0.9446659	1.0470198	0.9987647
NADP-dependent isocitrate dehydrogenase, cytosolic	1.0505075	1.1625873	0.8700033	0.8560496	0.8815391	0.8715807	0.6579148	0.9430142	0.5803416	0.8742474	0.7654787	0.9640394	0.9352261	0.8890194
Phase-1 RCT-289	0.6273439	0.6261101	0.7069508	0.4988254	0.8197219	0.9840117	0.7083383	0.9783509	0.7672762	0.7186644	0.9467017	0.9060549	1.1170591	0.991654
Glutamine synthetase	1.0122482	1.0133481	1.0876803	1.05616	1.156103	1.0742822	1.1382331	1.4118668	1.0244579	0.9458515	1.1529943	0.9984097	1.1699831	0.9126689
Phase-1 RCT-182	1.0773256	0.7952755	0.6308931	0.5783318	0.6808135	0.9868669	0.6521811	1.0938393	0.719855	1.2789668	0.8369481	0.6377794	0.8835357	0.7953116
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.971682	0.830269	0.8264602	0.7788256	0.8922011	1.1171154	1.3759131	1.3615159	1.344485	1.2133102	1.3712791	1.0965292	1.4055922	1.1337833
Extracellular-signal-regulated kinase 1	0.840053	0.5107802	0.378788	0.2411319	0.2387902	1.0938401	0.9220062	0.8834366	0.9233549	0.8853308	0.7421242	0.9318174	0.55033	0.7326825
Ern1	1.3089138	1.3182248	1.1625932	0.701086	0.9900165	0.9398523	1.1119928	0.9629712	0.978607	1.1393457	0.8230848	1.3849081	1.4212873	1.7454102
Phase-1 RCT-76	1.101263	0.9190535	0.9802342	0.7581422	0.9202681	1	0.8794202	1.0631474	0.8703955	1.0930982	1	0.7915408	0.89054	0.7870286
Phase-1 RCT-212	0.6681351	0.6266831	0.717504	0.7221816	1.0439668	0.9715513	0.847584	1.0408399	1.0012947	1.0971035	1.0367546	0.8877345	0.902493	0.8932788
Phase-1 RCT-168	1.2306873	1.0887958	1.0488372	0.8321793	0.9547468	0.8862758	0.544033	0.8991006	0.7507823	0.5121778	0.4479933	1.0402095	1.3195098	1.0798941
Lysyl hydroxylase	0.9151855	1.0799072	1.0850555	1.1665833	0.8502548	1.4868886	1.2557335	1.1076778	1.1076778	1.1076778	1.1076778	1.1076778	1.2128575	0.9268668
Phase-1 RCT-55	0.669755	0.7498632	0.7112371	0.7852803	1.2751788	0.8305684	0.7108417	0.9069951	0.6808924	0.8639609	0.8238348	0.9664424	0.973132	0.8962677

MHC class I antigen RT1.A1(f) alpha-chain	0.9220004	0.9978906	1.0085784	1.1232988	1.1749231	1.8383648	1.3110204	1.1089827	1.3744236	1.6525911	1.2688493	1.0875078	0.7548979	0.9652919
Phase-1 RCT-40	1.142313	1.1614307	0.8589244	0.8829776	0.89521	0.9825406	0.9357773	1.333961	0.8317008	0.7415124	0.9839089	0.6928498	0.9241318	0.6660984
Cytlin G	0.818247	1.2084734	1.2109188	1.2326605	1.9763862	2.088708	2.5875628	2.8529127	5.5224924	5.7263427	1.2905228	0.8943251	0.9488841	
Peroxidase proliferator activated receptor gamma	0.8761163	1.010359	1.1754947	0.6825765	0.537784	0.8231603	0.8158811	0.7424828	0.7344958	0.6858305	0.5825612	1.3698257	1.1071922	0.8844312
Phase-1 RCT-280	1.1900065	1.163371	1.1028711	1.1484097	0.8714736	0.9523067	1.0607177	0.8274586	1.1085544	0.7929913	0.9800474	1.0670675	0.939196	
D-dopachrome tautomerase	0.7296417	0.7144721	0.6082565	0.5594831	0.6428797	0.9757455	0.7718169	1.3433974	0.9433621	0.8984301	1.0952792	0.8260452	0.9878911	0.7970778
Phase-1 RCT-287	1.1467422	1.2848513	0.985082	0.9427435	1.0710658	1.2319392	0.9286174	1.0541203	0.918619	1.1302222	1.095958	1.1517566	1.2045815	1.0615433
Phase-1 RCT-119	1.9880895	1.5405366	1.1503268	0.8815578	1.0061892	0.9181774	0.4938768	0.8560834	0.6704112	0.6239486	0.6250264	0.5576165	0.8699736	1.082683
Thioredoxin-1 (Trx1)	0.8554814	0.9188081	0.9507105	1.0081847	1.1137342	1.0669836	1.0990372	1.3200028	1.2004397	1.3720669	1.5935584	1.148264	1.5803232	1.0829508
Phase-1 RCT-225	0.6378572	0.8402514	0.6947967	0.6845623	1.1247225	1.2019472	1.7485437	1.1241944	0.8642692	1.0253955	1.0692991	1.1783477	1.2785318	1.0276109
Protein kinase C alpha	1.143705	1.3090938	1.1024612	1.1266302	1.275723	0.8042295	0.9528098	0.8914604	1.022812	1.0834047	0.8634725	0.939705	1.2789264	0.9421706
Phase-1 RCT-87	0.881456	0.769196	0.9429412	0.874217	0.8524851	1.0375906	1.036284	1.1108028	1.0543128	1.1116376	1.277041	0.869207	1.0637668	0.8309008
Phase-1 RCT-59	1.0565059	0.9623858	1.0298393	1.0481942	1.1524539	1.5674758	1.4307327	1.0592649	3.1518254	2.482888	3.713464	1.104827	0.850275	1.0224192
C4b-binding protein	1.1684581	1.233798	0.8938183	0.8018568	0.933904	0.8525462	0.8196399	0.7784235	0.8231621	1.072345	0.7397378	0.9645513	1.2008616	0.8601201
Phase-1 RCT-204	0.925979	0.8856897	0.8716339	0.8313951	0.9047712	1.0813654	1.0805084	0.9647512	0.903746	1.0038628	0.9705741	0.9138388	0.8995572	1.018074
Carbonyl palmitoyl-CoA transferase	0.8696795	1.2100221	2.0888746	2.074062	1.2719198	1.2743616	1.2639215	0.7535704	1.0858845	1.1620414	1.0611956	1.2688335	0.8885603	1.0878283
8-oxoguanine DNA glycosylase	0.9139517	1.0500882	0.9810633	1.0832365	1.1479695	0.9965332	1.0774955	0.9135078	0.8652567	0.6880069	0.8309463	0.8682193	0.507876	0.9559618
H-rev107	1.3677338	1.6960224	1.3043967	1.6239588	1.2593548	0.8818493	0.73995453	0.9987862	0.8239122	0.9337972	1.1313337	1.0173795	0.5518554	0.7389997
Preproalbumin	1.5262921	1.3890699	1.126783	1.0145448	0.9118512	0.914107	0.8568504	1.0703257	0.7481232	0.7475388	1.0941618	1.127677	1.1083003	1.1039264
Phase-1 RCT-177	0.9419355	0.8569527	0.7316012	0.7485083	0.7525227	0.9903163	1.0568191	0.9773096	1.0059986	1.0569894	0.8530992	0.9480823	0.7700564	0.8653486
Phase-1 RCT-110	1.1219705	0.9708979	1.0148945	0.7522841	0.9777166	1.1418369	0.7081797	1.0658389	0.8278618	1.1731341	1.4920981	0.7604884	0.9995862	0.7896342
Neuropeptide Y	0.9518693	0.8858903	0.820267	0.7629712	0.8320915	0.9568901	0.8320125	0.9245049	1.2350802	1.2737019	0.8446038	0.9248889	0.8652428	0.9337464
Phase-1 RCT-277	0.8252193	0.8207644	0.8557452	0.9625894	1.0395354	0.8916547	1.0027869	1.0167917	0.9299302	0.7974231	0.9603907	0.8900505	0.9842934	0.8678485
Phase-1 RCT-229	1.109886	0.8607388	0.9948127	0.7848485	0.9082511	1.0212615	0.7928872	0.980537	1.0672075	1.6240153	0.8684574	0.8950664	0.7411576	0.8942018
Phase-1 RCT-34	0.9637625	0.9899156	0.9474135	0.894336	0.9985528	0.5605913	0.4376034	0.6976548	0.6147797	0.8147797	0.6483958	0.9870291	0.9411096	0.9181494
Choline kinase	0.8542138	0.7876244	0.9789072	1.1913267	0.7598936	0.9692103	1.1535779	1.1147641	1.0482554	1.228698	1.1860961	0.9611781	0.8724414	1.1537596
Phase-1 RCT-20	1.1604072	1.1680671	1.1193624	1.2247064	1.2229095	0.9824191	1.1543435	1.0586738	1.1521776	1.122556	1.0722178	1.0241532	0.8953397	0.8795231
Phase-1 RCT-248	0.9401617	0.9771152	1.0882425	1.1208252	1.2611833	1.0943983	1.0652899	0.8798857	0.9580287	1.0154983	0.9643522	1.0723004	1.251142	1.3533441

- (1) Gene expression data for 6 hour timepoint are presented as mean ratio of treatment/control for all 6 hour predictive genes (Table 20).
- (2) Compound and dose abbreviations as in Table 1.
- (3) Individual animal number
- (4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed
- (5) Predictive gene (as in Table 20 and as included in Table 32)

Table 34. Expression Data for 6 Hour Timepoint (1)																		
Compound-Dose (2)	Animal Number (3)	CLO 250	CLO 250	CLO 250	CLO 250	CLO 250	CLO 250	CLO 250	CLO 250	CLO 250	CLO 250	CLO 250	CLO 250	CLO 250	CLO 250	CLO 250	CLO 250	CLO 250
Liver Toxicity Necrosis Classification (4)		1841	1842	1843	2421	2422	2423	2423	2431	2432	2433	151	152	153	2241	2242	no	no
Gene Name (5)		no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Gad153		0.9808976	1.1410654	0.9374231	1.1182563	0.9448752	0.9333098	1.1765646	0.9342311	0.7608967	0.8100289	1.0811524	1.9686092	1.385269				
Interferon related developmental regulator		0.8810267	0.7182581	0.7748178	1.0875887	1.2180828	0.937407	0.9288757	1.0345932	1.0207139	0.7855883	0.8484688	0.773653	1.5959315	1.3303884			
IFRD1 (PC4)		1.0880745	1.2008054	1.1652457	0.7702386	0.8847795	0.9727145	1.0591007	1.039665	1.1181648	0.8002384	0.8862174	0.9970438	1.3484638	1.5311825			
ID-1		1.1164829	1.5894657	1.1699874	1.4766254	1.07835	1.3163824	1.0187067	1.122365	1.0346951	1.0216945	0.9608531	0.985763	0.8641444	1.4837782			
NIPK		0.8368485	0.8146783	0.8091981	1.0655283	1.2932701	1.000479	1.1249355	1.0983653	1.0368168	1.0869685	1.0931784	1.0450101	1.1963465	1.1277021			
Phase-1 RCT-50		0.8042951	1.0352192	0.9889638	0.918011	1.027393	0.9101507	0.9771627	1.0112197	0.9465407	1.0047923	1.1946847	1.3816605	4.033162	5.585607			
Sarcoplasmic reticulum calcium ATPase		0.9992048	1.0909557	0.9665774	1.1402038	1.1398048	1.0184636	0.98317	1.0298532	1.0411139	0.5761599	0.6227019	0.9184884	1.2259504	1.1588426			
Phase-1 RCT-207		1.0316937	1.5294598	1.3800668	0.9013122	0.9000346	0.9108143	0.9625818	1.0310225	0.9897835	1.160821	1.1341091	0.9207895	2.7614477	2.5460906			
Acetyl-CoA carboxylase		0.9077064	0.943137	0.865503	1.1002442	1.5209866	0.8949486	1.0765935	0.9105415	1.0918167	0.9380899	0.9710398	0.9110474	0.8647038				
Cathepsin L, sequence 2		1.0163392	1.1988395	1.0473108	1.0776472	1.0766658	1.0270677	0.9306462	1.1783472	1.5047637	0.7683687	0.9822233	0.8843788	2.7601736	3.3044343			
Glucokinase		0.8913963	1.2220505	0.9930557	0.7889819	0.6701633	0.4875298	0.9185473	0.6881668	0.5475149	0.3774918	0.4271972	0.4861481	0.6511732	0.5061088			
Gcd445		1.4709898	1.0246948	0.9817869	1.1511537	1.0001892	0.8837206	0.9226152	0.9435921	1.5789286	1.2575942	1.8472887	1.2860641	1.214862	1			
Phase-1 RCT-18		0.9673203	0.9994537	0.9429218	0.8590237	0.9421533	0.8213382	0.8824967	0.8677251	0.8760584	1.0255771	1.1607585	1.4343021	1.034599	1.0540371			
3-beta-hydroxysteroid dehydrogenase (HSD3B1)		1.0359262	0.8313455	1.0069315	0.7710981	0.8940825	1.1695011	1.0599293	1.0123714	1.0091615	0.8308232	1.0018026	0.9553083	0.7582178	0.8239129			
Phase-1 RCT-221		1.159901	0.8301622	0.9389841	0.9978771	1.0921589	0.9513888	0.9889565	1.0090134	1.1305184	0.8779668	0.8119122	0.7612242	0.8988828	1.1127518			
Heme oxygenase		0.8119684	0.5829337	0.6484602	0.9824582	1.6913332	1.0439022	1.6500137	1.1148443	1.3064055	1.4164284	1.2920971	0.9538655	0.7792441	0.8337236			
Cyclin dependent kinase 4		1.0012888	0.995525	1.093948	1.0530684	0.8964134	0.9068167	0.9177654	1.0413052	0.9474883	0.7992693	0.7279431	0.871404	0.9606662	0.7006463			
Phase-1 RCT-75		0.9956465	0.8213385	0.7747017	1.00311	1.1575559	0.9898019	1.0270292	0.9723801	1.1710882	1.1888588	1.0708501	1.8986644	1.8762042				
Phase-1 RCT-65		0.9948198	1.150421	0.96705	1.3164803	1.1347224	0.8927275	1.214214	1.0902854	1.426122	1.181896	1.3632298	1.084024	0.9382915				
Cytochrome P450 1A1		0.9418458	1.7376593	0.9267996	0.7708598	0.8532201	0.7834163	5.138333	0.9485354	0.7873413	0.8366267	1.1261358	1.0374235	1.2725967	1.2586222			
Peroxisomal multifunctional enzyme type II		1.485648	1.1685367	1.2926756	1.2339665	1.3282776	1.2846198	1.1289783	1.0240006	1.4589493	1.1908965	1.155684	1.0523934	0.7897263	0.791615			
DNA topoisomerase I		0.8436759	0.9904681	0.733056	1.3459347	1.3590252	1.2516785	1.0840245	1.2072841	1.3180852	0.825739	0.821817	0.6059353	0.8200689	0.7588441			
Focal adhesion kinase (p125FAK)		0.9672682	0.8894373	0.8900354	0.9147795	0.9625965	0.9351348	0.8391174	0.9397891	0.8956956	0.9151287	1.0396539	1.098453	1.249245	1.3170982			
NGF-inducible anti-proliferative putative secreted protein (PC3)		0.9825646	0.7283962	0.9459561	1.048002	1.1530355	0.9120295	1.0493531	0.9143484	0.9376797	1.2660489	1.1596255	1.4273437	1.8212605	1.5847789			
Phase-1 RCT-82		0.9453846	0.988136	1.0821024	0.9581508	0.9802937	0.8246241	0.8458508	0.970567	0.8449153	0.9342508	0.9788081	1.177113	0.9320036	0.8798012			
Senescence marker protein-30		0.4211528	0.4748825	1.050428	1.4753989	1.0794756	0.8026514	0.9307346	1.0866205	0.7431943	0.6006578	0.529814	0.6655551	0.3749239	0.1939765			
Melanoma-associated antigen ME491		1.0222632	1.4581557	1.0210073	0.7708532	0.8438385	1.064818	0.822859	0.9170407	0.9549704	0.7661839	0.7212641	0.9350305	1.1566821	1.3748273			
Activating transcription factor 3		0.4920422	1.2822056	1.1339073	1.1734228	1.0272698	1.2657508	0.9528345	0.9898253	0.8460117	1.1242064	1.2127811	1.242064	1.2143383	0.8549494	0.8087356		
Tyrosinase hydroxylase		1.0754423	0.7199513	0.9398391	1.336392	1.0951045	1.340814	0.9612781	0.9798663	1.2862893	1.119373	0.9010423	0.8489122	0.8452963	0.5691863			
Zinc finger protein		1.035419	0.9452173	0.9189344	0.7687463	0.8495818	0.8543456	0.9688488	1.1548481	0.8096424	1.144403	1.0999786	1.0347527	3.484682	4.6837034			
c-myc		1.1186986	1.0484416	0.9548339	0.7265537	0.8967418	0.7177096	0.9443395	3.2173533	0.8366362	1.2135689	1.3119427	1.4491764	1.5442644	2.188976			
Cholesterol 7-alpha-hydroxylase (P450 VII)		0.9309568	2.6280757	1.0142232	1.4397809	0.9356353	1.0783836	0.8886511	1.1206236	0.7854834	0.748895	0.8386592	0.7229146	0.9487857	0.8408052			
Ferritin H-chain		1.0074964	0.749508	1.0745804	1.0580496	0.9748812	1.0133928	0.9148249	1.024457	1.1885884	0.800636	0.8596141	0.8203639	0.6596249	0.6648522			
Phase-1 RCT-197		0.9017187	1.0155311	0.9051011	1.0756719	0.8391094	0.9836285	0.8669242	0.9510899	1.0383345	0.8134939	1.0090666	0.9463343	1.422862	1.3185365			
Phase-1 RCT-179		1.1299447	0.9664941	1.0256494	1.0455304	1.0676757	1.0275719	1.1823905	1.0944417	1.3954943	1.0850761	1.0650789	0.8717648	2.000525	2.1926708			
Phase-1 RCT-15		1.0055814	0.9888541	0.9799083	1.3965299	1.7235432	1.1343454	1.2318407	1.3845695	1.6682378	1.0426614	1.1871517	1.2003523	2.609092	2.6730523			
Argininosuccinate lyase		1.2848969	1.495418	0.9447678	1.422001	1.1525767	1.3732553	1.245431	1.3077242	1.9775527	1.0951878	1.0512652	0.9068866	1.7755879	2.3974206			
Phase-1 RCT-49		0.9662702	1.1859583	1.0047666	0.8699458	1.067766	0.8586408	1.0070145	1.0144081	1.0287235	1.1869719	0.9826631	1.1619563	0.2251441	0.0473048			
Carbonic anhydrase III		1.2433301	1.011188	1.8360097	1.1873289	0.4733803	1.3700339	1.2391126	0.7080345	0.4872412	0.6890884	0.6857857	1.1619563	0.2251441	0.0473048			

Proliferating cell nuclear antigen gene	1.0001537	1.0748878	0.9079856	0.8603733	1.0023931	0.8633696	0.9892061	1.0091459	0.9085991	1.3038764	1.154817	1.3424358	1.218333	1.1726984
Integrin beta1	1.0537393	1.1135844	1.123301	1.3409257	1.1803995	1.1111859	1.0403761	1.0186528	1.0347819	0.9667066	1.0861601	1.4366923	1.6006643	1.7452571
Caspase 6	0.9478893	0.980948	1.099585	1.0583331	1.0522219	0.9787135	0.9777723	0.9596847	0.924901	0.8707469	0.8704825	1.3078352	1.22215	1.0538768
Phase-1 RCT-116	1.2120555	1.5602555	1.1838882	1.5083719	1.3212972	1.0827298	1.1557751	1.4288309	1.2664233	1.013206	1.2134981	0.9774803	1.112274	1.0605539
Phase-1 RCT-109	1.3892442	1.4571643	1.1545767	0.9601951	1.1758571	1.2127372	1.0754565	1.0705416	1.0619336	0.781185	0.892063	0.6276345	1.2626413	1.2305433
Phase-1 RCT-71	0.9786948	1.149538	1.0938791	0.9919402	1.4856652	1.1384073	1.0951779	1.0750757	1.1033864	1.0887866	1.2610478	2.0775554	2.0094228	
Elongation factor-1 alpha	1.2048628	1.0291805	0.9954457	1.3914833	1.0896405	1.2014773	0.9548932	1.0186756	1.1598856	0.9531817	0.7591885	0.5408555	0.9531817	0.9033678
Phase-1 RCT-169	0.9256603	0.8323792	1.0193197	1.1016575	0.8932812	0.9075989	1.1343166	0.9499923	0.8144562	1.324167	1.2558181	1.2609965	1.1902367	
Pyruvate kinase, muscle	0.9381899	1.1680395	0.9479113	1.126273	1.0550025	0.9400799	0.9484493	0.9847708	0.8729103	0.8729103	0.8729103	0.8729103	0.8729103	0.8729103
Nucleosome assembly protein	0.9675698	1.686649	1.3416399	0.933803	1.0772692	1.2890557	0.965304	0.9594558	0.6831263	1.2755677	1.4252563	1.5183342	0.8012471	0.6280324
Phase-1 RCT-127	1.0005565	0.9495652	1.066480	0.8375743	1.0772692	0.8225845	1.0849568	1.0100638	1.1774249	1.1618335	0.9404816	2.8177075	3.3913255	
Iron-responsive element-binding protein	1.0185441	0.9715442	1.0255917	1.0631104	1.1880623	1.0323111	1.1156142	1.0244161	1.0808064	0.9994935	0.8113191	0.9684551	0.6414047	0.5316567
Phase-1 RCT-72	0.9718688	1.0328351	1.1010514	1.0263551	0.8817172	0.9798827	1.0656226	0.9228984	0.8384938	0.9370267	1.0072022	1.0474843	1.5537046	1.2441758
Phase-1 RCT-144	1.0570142	1.068542	0.9395442	0.9311223	1.1164808	0.8673141	0.9130331	1.0675185	1.2196552	0.7341973	0.8196614	0.6286181	2.5857449	3.6033442
Phase-1 RCT-242	0.9874957	0.9015144	0.9241944	0.8375161	0.932177	0.8002071	0.9837781	1.063435	0.8936893	1.1210269	1.3456041	1.4646462	3.2036362	3.7286282
17 beta hydroxysteroid dehydrogenase, type 2	1.0575863	2.4837582	2.0148289	1.0046862	0.63258	1.5851679	1.1880333	1.1439115	0.5170498	2.3955397	2.3121948	2.2213478	0.3941614	0.4124797
Phase-1 RCT-70	1.1507982	1.1338258	1.1054069	1.0251231	1.0979865	0.9352164	0.9929135	0.9604012	1.0166661	1.0521004	1.0162028	1.0391489	1.3115969	1.3713875
Ribosomal protein L13A	1.3684813	1.4455322	1.1781609	0.9903457	1.0299431	1.1326166	1.0632843	1.1162372	1.1584325	0.8795698	0.9925988	0.5878812	1.2140301	1.2904428
Cytochrome P450 2E1	0.9459211	1.1777763	1.0346562	1.2748483	0.3783584	1.2014453	0.7309387	0.9701947	0.9544632	1.1509818	1.1771178	1.0047926	1.118516	1.6182413
AT-3	0.9239421	1.0214568	1.0522834	0.9826552	1.0041664	0.9720713	0.9276583	0.8523181	0.9310506	0.8327506	0.9218012	1.0671057	1.022456	1.080334
Phase-1 RCT-270	0.6657512	0.47017	0.9795018	1.4407829	1.2082541	0.9390898	1.1587849	0.9684931	0.8844253	0.9597781	0.7339256	0.9525176	0.3805625	0.3087489
Phase-1 RCT-123	0.9675326	1.0007063	0.9142351	0.8138464	1.03213	0.8974399	0.9382651	0.8708859	0.8487685	1.1584042	1.1991154	1.1339612	0.8036441	0.8162525
Alpha-2-macroglobulin, sequence 2	0.9787861	0.9995096	1.0116966	1.3336995	1.088697	1.0847844	1.1405032	1.1571331	1.2587081	1.0136857	0.9132677	1.0551114	1.0750335	1.1854357
Matrix metalloproteinase-1	1.0636213	0.8628396	1.0718575	1.1109232	0.8888739	1.2920443	0.8169901	0.9097909	1.1867009	0.106953	0.9432278	0.9539881	0.8893518	1.0111585
Beta-tubulin, class I	0.9812037	0.8618971	1.3929395	1.3920385	1.2511502	1.0080084	1.2184175	1.0281503	0.5381852	0.8127111	0.5381852	0.8127111	0.9494259	0.9606707
Phase-1 RCT-161	0.9705439	1.1194715	1.2595773	0.7993948	0.8937158	0.8002781	0.7343197	0.9299735	0.7880477	0.8477458	1.0011393	1.4442161	1.0018919	0.9606707
14-3-3 zeta	1.0450435	1.0489594	1.0482322	1.0635517	1.0038257	0.9885695	0.9883122	0.9489332	0.9815716	1.0571456	1.0229127	0.9634926	1.5139843	1.4217017
Stem cell factor	0.8036336	0.8085044	0.9255235	1.378464	1.0391838	1.0148534	1.0028883	0.9786085	0.796292	0.6532143	0.5942181	0.8936085	0.9135138	0.7087805
Macrophage inflammatory protein-2 alpha	0.9033192	0.7485687	0.9462527	1.0810547	1.1090052	1.14337	0.8917656	0.9840262	0.9278842	0.981556	1.5673363	1.6591642	1.6509347	1.8104758
Thymidylate synthase	1.0589908	1.1072227	0.945988	0.7496661	0.8315253	0.8796602	1.0131876	0.891104	0.7403107	1.1865576	1.3388974	1.6733768	1.145832	1.0986454
c-jun	1.1416692	1.0892528	1.0810723	2.2610528	0.9682853	0.9991188	1.2782836	0.9436708	0.9767608	1.1291357	1.3388828	2.3322034	1.587437	
Superoxide dismutase Mn	1.2521008	1.326852	1.0989552	1.403422	1.2593702	1.1550072	1.2730436	1.1855384	1.1897198	1.1143311	0.9802153	1.0487516	2.2193022	1.4983441
Phase-1 RCT-73	1.1047949	0.977787	1.0779636	1.0577729	1.1294429	1.0452851	1.0321558	0.9962387	1.1204464	1.03073	1.0239667	1.1554004	0.7492527	0.8100732
Macrophage inflammatory protein-1 alpha	1.0655606	1.0027701	1.0328538	0.7622803	0.7778626	0.7866654	0.973594	1.2308886	0.7427456	1.2069107	1.1516151	1.3781619	1.254737	1.4303427
Phase-1 RCT-214	0.9631545	0.7844238	0.8196483	0.9291552	0.990579	0.9888939	1.0150075	1.1070365	0.9745829	1.1208043	0.8715661	1.0046376	0.6881101	0.5054577
NADH-cytochrome b5 reductase	0.8933366	0.8004869	0.8455348	1.1134814	1.0447628	0.9489074	1.1377784	0.9820256	0.9807084	1.1738493	0.7969666	1.1578748	0.3745182	0.3558243
Interleukin-1 beta	0.9748898	0.8820345	1.121455	1.1273118	0.9809169	1.1047702	0.9470083	0.9571706	1.1233792	0.9544559	0.9596923	1.0394517	0.895988	0.9455692
NADP-dependent isocitrate dehydrogenase, cytosolic	0.9206825	0.6934585	0.8368779	0.98839	1.1040357	0.9525166	1.1709274	0.9243189	0.8436446	1.0873817	0.7924356	0.8468297	0.2760605	0.2540225
Phase-1 RCT-289	1.0622177	0.9919961	1.2031344	0.9698447	0.9422024	1	0.7444939	0.8873094	0.84607	1.0276419	0.9856249	0.9856671	0.560843	1.5658117
Glutamine synthetase	0.8225883	1.0531967	0.8729375	1.0046906	0.7456022	0.9876058	1.1271668	0.9864295	0.8659521	0.957763	0.7806025	0.8461093	1.2082832	1.2588074
Phase-1 RCT-182	0.8362828	0.8982307	1.0926597	0.9732112	0.8329441	1.1651516	0.8192288	0.8127571	1.0544989	1.0046797	0.8246641	0.8762103	0.3865844	0.4196328
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.1046615	0.9266716	1.0462561	0.9350017	0.9350017	1.2123113	1.1891202	1.1758055	1.4245914	0.8570273	0.8660294	0.6684883	0.9942862	1.247427
Extracellular-signal-regulated kinase 1	0.900061	1.0584913	1.2510808	1.057161	0.6285249	1.2222856	0.9560394	0.6398795	0.5311057	0.6864108	0.739759	1.1879661	0.3524557	0.2226294
Emerin	1.114966	1.3014317	1.444523	0.9345439	1.0051866	0.9867944	1.0956088	1.0733517	0.9704013	1.185682	1.1485847	0.8379549	0.7791947	
Phase-1 RCT-78	0.8533472	0.8828223	1.0001426	1.0772234	1.127215	1.0339076	0.9589559	0.8696312	0.8977453	1.021167	0.9108863	1.0313257	0.8074775	0.7246457
Phase-1 RCT-212	0.9593411	0.8509183	0.9671716	0.9144535	0.8559242	0.9199735	1.1306477	0.8945802	1.0897845	1.0095264	1.0338799	0.9202671	0.9132324	0.890877
Phase-1 RCT-168	1.104003	1.0789691	1.1120517	1.0144648	0.9892755	1.0412582	0.8264778	0.9121315	1.0077223	0.9305367	0.8917636	0.8217636	0.517829	0.5605307
Lysyl hydroxylase	0.9895941	1.0065663	1.0063249	0.9174858	0.6834018	1.0229279	0.8605762	0.94825	0.9931779	0.7603325	0.8923739	1.0575664	1.0978385	
Phase-1 RCT-55	0.9402393	1.3462903	0.8970724	0.9672162	0.7208364	0.7303916	1.0411817	0.9595241	0.8942521	0.9220764	0.8947722	0.9568933	1.121799	1.4907824

MHC class I antigen RT1A1(0) alpha-chain	1.0314152	1.1438619	0.9624206	1.1986866	1.4804423	1.0184325	0.9970649	1.1783234	1.1231898	1.1453495	1.1801518	1.6179262	1.452018	1.271279
Phase-1 RCT-40	0.8989399	0.6283605	0.8560895	1.572512	1.6342572	0.9743063	0.8613499	0.8967147	0.9688458	1.0283419	1.1065841	0.9202871	0.5698715	0.4838135
Cyclin G	0.9674813	1.4616573	1.0295708	1.0565988	0.8900976	1.071694	1.0041132	1.0827152	1.1595474	1.034909	1.2865733	1.2483012	3.7452185	4.571906
Peroxisome proliferator activated receptor gamma	0.9929379	1.3650321	0.8849561	0.848083	0.6568345	0.9971213	1.016789	0.8723482	1.345292	1.4028924	1.2013322	1.5603776	1.1553857	0.970739
Phase-1 RCT-280	1.0198756	0.8127364	0.8144099	0.9713171	0.8575961	1.0165447	0.9381239	1.4093803	0.9843707	1.1513247	1.0119042	1.0737574	0.7020422	0.4806872
D-dipachrome tautomerase	0.8693069	0.8125631	0.9842208	1.1838523	1	1.2375549	1.232398	0.9785563	1.1540988	0.9527921	0.9071145	0.8776088	0.3796619	0.3768816
Phase-1 RCT-287	1.2287436	1.0080564	1.1650683	1.1046329	1.171368	0.9985269	0.9098843	0.9658876	1.0431648	0.7402771	0.7400485	0.9174675	0.7734382	0.7382081
Phase-1 RCT-119	1.0445286	0.9346325	1.0852857	1.1677629	0.9518777	1.0818635	0.8382615	0.9309044	1.1316528	1.0356885	0.9959465	1.3149339	0.9015281	1.2205942
Thioredoxin-1 (Trx1)	0.9116357	1.4018592	0.8712688	0.2718085	0.579256	1.3907342	1.0880104	1.2127857	1.0960408	1.0716468	1.1472393	1.0255165	0.6609843	0.637054
Phase-1 RCT-225	0.9576035	0.988513	0.969444	1.0275874	0.9313216	1.00167	0.9176223	0.8718494	0.8583678	0.7528158	0.6720756	0.7777195	1.125374	1.1235071
Protein kinase C alpha	1.0210327	0.86518	1.0520636	0.9509893	1.0212699	0.8242882	0.8024983	0.8772966	0.9689744	1.1319923	1.0914907	1.0841888	0.7451384	0.734158
Phase-1 RCT-87	1.077258	1.0592402	1.235905	0.690886	0.9896994	0.8262069	0.9104352	1.108546	0.8209917	0.9071966	1.0232013	0.905435	2.5667937	2.6899319
Phase-1 RCT-59	0.7414722	0.523028	0.775379	1.0130826	1.3614047	1.1229983	0.831654	0.9751314	1.134305	0.9225394	1.0717598	0.8385773	0.7669753	0.6623135
C4b-binding protein	0.9753441	1.0067638	0.9410997	0.9762682	1.0234381	1.0566935	1.2071822	1.1083045	1.3348511	0.9210352	0.9427806	0.9680378	1.6626132	2.26592
Phase-1 RCT-204	1.0340303	1.7449958	1.3448441	0.9355328	1.051204	1.1397537	0.8802019	1.1462771	1.3422669	1.3206326	1.3679037	1.5878674	1.3934232	1.3271409
Carboline palmitoyl-CoA transferase	0.8450393	1.0108324	0.863728	0.9439642	0.901842	0.8836787	1.0015395	1.0086834	0.9101519	1.153777	1.0788057	1.2754111	1.3766986	1.478251
8-oxoguanine DNA glycosylase	1.0062102	0.9867915	0.8228442	0.8214302	0.8954701	0.8498508	0.9250225	0.9197654	0.3972068	1.1598828	1.1836582	1.0389929	1.1313727	1.2012417
H-rev107	1.0630776	0.8958946	0.9429222	1.3287193	1.5401993	1.3660408	1.2189285	1.0872719	1.2314241	1.1835746	1.113928	1.4968722	0.4791986	0.31543
Preproalbumin	1.3284144	0.8758865	1.0373514	1.2515868	1.4211285	1.1879334	1.1836313	1.2105507	1.3585994	1.061051	0.9954885	0.9349858	0.6427981	0.6380784
Phase-1 RCT-177	0.9262117	1.1018304	0.9765634	0.735695	0.6863278	0.7774005	0.8940316	0.8710881	1.1298111	1.3195572	1.8803578	1.3594975	1.0384028	
Phase-1 RCT-110	0.9089461	1.1239718	1.0288888	1.2896691	1.0213081	1.311045	1.3450123	0.8812623	1.2222847	1.2152252	0.9932076	1.1232198	0.5600708	0.4153755
Neuropeptide Y	0.9438619	0.9527084	0.8020995	0.8628586	0.9022168	0.8442031	0.8854881	1.4324944	0.804572	0.9906946	1.1588262	1.3258679	0.9655659	0.8575395
Phase-1 RCT-277	0.7125464	0.5755822	1.0472574	0.8644863	0.867917	0.8363984	1.1152446	1.0031583	0.9726225	1.2481302	1.2206075	1.2734294	0.5275348	0.5100324
Phase-1 RCT-229	0.8970875	1.0555822	1.0472574	0.8644863	0.867917	0.8363984	1.1152446	1.0031583	0.9726225	1.2481302	1.2206075	1.2734294	0.5275348	0.5100324
Phase-1 RCT-34	0.9842579	1.2005953	1.1281708	2.0779154	1.1189853	1.3808507	1.2224481	1.092183	1.1345469	1.2249236	0.9225232	0.9998194	0.5974576	0.5671926
Choline kinase	0.904444	0.9331387	1.0642782	1.4028679	1.3247349	0.8788527	0.9972829	1.0185006	0.848261	0.8494175	0.7828388	1.2738152	1.3471842	1.3503621
Phase-1 RCT-20	1.0025303	1.1695054	0.9887838	1.0595549	1.0337205	0.9270567	1.040153	0.983609	0.9849184	1.0130256	1.0932242	1.2552941	1.1336882	1.0829953
Phase-1 RCT-248	1.0539098	1.2938945	1.1279898	0.7711037	0.889482	0.5159522	0.9320796	0.9497179	0.7653366	0.9090595	1.0039512	0.7945378	1.0588138	1.1855242
(1) Gene expression data for 6 hour														
timepoint are presented as mean ratio of														
treatment/control for all 6 hour predictive														
genes (Table 20).														
(2) Compound and dose abbreviations as														
in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for														
compound-dose group at 72 h: yes,														
necrosis observed; no, no necrosis														
observed														
(5) Predictive gene (as in Table 20 and as														
included in Table 32)														

Table 34. Expression Data for 6 Hour Timepoint (1)																	
Compound-Dose (2)	Animal Number (3)	CHEx 0.5	CHEx 2	CHEx 2	CHEx 2	CHEx 2	CHEx 2	CHEx 2	CHEx 2	CHEx 2	CHEx 2	CHEx 2	CHEx 2	CHEx 2	CHEx 2	CHEx 2	CHEx 2
Liver Toxicity Necrosis Classification (4)		2243	2251	2252	2253	2141	2142	2143	2151	2152	2153	2154	2155	2156	2157	2158	2159
Gene Name (5)		no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Gadd153		1.7844477	1.323875	1.5871851	1.8510119	1.0268688	1.1817113	1.3905258	1.0537983	1.2465805	1.007254	1.443514	1.2364559	1.2442609			
Interferon related developmental regulator																	
IFRD1 (PC4)		1.3230062	1.1131834	1.2424812	1.5277249	1.1144816	1.2480401	0.791119	1.1207484	0.900986	1.4844143	1.0364828	1.1643105	1.3509716			
ID-1		1.5403085	0.9215258	1.0406017	0.9977781	1.0737023	1.218934	1.056492	0.9822516	1.1492193	0.9987915	1.2017941	1.0905391	0.9930104			
insulin-like growth factor binding protein 1		0.9697186	8.189722	36.193382	18.845623	1.2939781	1.5581142	1.086005	2.4847174	1.2253555	2.5293207	1.3858792	1.5527766	1.5027355			
NIPK		1.0629793	1.2139448	1.4987214	1.2468987	1.1163266	1.1450868	1.1998578	1.1156201	1.1094444	1.2278603	1.0853899	0.8537697	0.8763468			
Phase-1 RCT-50		3.449078	4.10797	7.0997186	8.844672	0.8369129	0.935373	0.8181895	1.0559547	0.9538594	1.1388606	1.1786147	0.964114	0.9935789			
Sarcoplasmic reticulum calcium ATPase		1.2380323	0.9488905	0.8117185	0.8171244	0.8859316	0.8928636	1.0207125	0.9893088	1.166248	1.009637	0.9408266	0.7624447	0.8329145			
Phase-1 RCT-207		2.2760494	3.0277555	4.7050414	4.5417094	1.0999082	1.2015456	1.3157319	1.3795277	1.3000697	1.4803665	1.1154239	1.1237066	1.3242897			
Acetyl-CoA carboxylase		0.8709167	0.9854698	0.7451589	0.7324497	1.0301207	0.8291789	1.0908287	0.8337498	0.8834515	0.8416207	0.9767702	0.950153	0.9375011			
Cathepsin L sequence 2		3.1731493	2.988516	5.7428937	4.2624383	1.2560953	1.387408	0.7994248	2.175082	1.3095542	2.2591949	1.2628628	1.5413916	1.808275			
Glucokinase		0.8462257	0.5817117	0.4505983	0.3842188	0.9972352	0.6873238	2.2650378	0.478833	1.1305695	0.5890625	1.6630741	0.9114418	1.2507352			
Gadd45		1.0798941	8.584091	9.897914	13.841803	1.4409771	1.6393377	1.5678291	1.4900218	1.4198187	1.8735077	1.334124	1.0850015	1.0681955			
Phase-1 RCT-18		1.0813081	0.8127868	0.8315097	0.8734788	0.9405059	0.9661301	1.0864013	0.9022892	0.8273383	0.871984	0.998203	0.8740392	0.8614071			
3-beta-hydroxysteroid dehydrogenase (HSD3B1)		0.8911956	0.856894	0.8700759	1.0063759	0.8148979	0.7476584	0.7089165	0.7348112	0.6745015	0.7038327	0.4880432	0.5953847	1.1849707			
Phase-1 RCT-221		0.9522474	1.1702023	1.0630688	1.0842638	1.0872105	1.2254709	1.0788828	1.1228822	1.28848	1.2511262	1.0997255	1.3298378	1.3027854			
Heme oxygenase		0.8211622	1.321163	0.9363931	1.0621456	1.0715398	0.867678	0.952763	1.0802235	1.5192341	2.1460571	1.2912079	1.7050287	1.7054217			
Cyclin dependent kinase 4		1.1203977	0.9351213	0.7578149	0.8261239	1.0173368	0.985562	1.0408356	1.0995982	1.1084725	1.0856723	1.3057233	1.5881155	1.1882174			
Phase-1 RCT-75		2.068471	1.517875	3.072005	2.5847674	0.9999719	0.9432594	1.2243012	1.0161562	1.1273503	1.095369	1.0168229	1.0215611	1.0415287			
Phase-1 RCT-65		1.0132	1.570903	1.2304034	2.1907747	1.3841032	1.4658718	1.7493815	1.3491828	1.4387356	1.3280704	0.8850978	0.7892828	0.8739781			
Cytochrome P450 1A1		1.1925737	0.875899	0.804912	0.9034701	0.9763113	0.9893409	1.6522053	1.0185412	1.2809584	0.9525853	1.4712571	0.6727427	0.6659737			
Peroxisomal multifunctional enzyme type II		0.8538019	1.0089917	1.2186886	1.1796415	0.7978566	0.7572708	0.636024	0.8805089	0.6912038	0.9296644	1.0438043	1.1017718	1.0142903			
DNA topoisomerase I		0.7561094	1.3112004	1.7509251	1.6573284	1.0103524	0.95232	0.7057418	0.7260371	0.874491	0.6649151	0.9285183	1.4486314	1.4512296			
Focal adhesion kinase (pp125FAK)		1.173637	1.1720437	1.242579	1.240816	0.9108803	0.9569864	0.9533665	0.9175289	0.8831956	0.9239895	1.0660281	1.2521734	1.1561521			
NGF-inducible anti-proliferative putative secreted protein (PC3)		1.3271519	5.7076497	5.450073	7.0906177	0.8127426	0.8492096	0.7577347	0.8182016	0.6889515	0.8786884	0.7221885	0.8937893	0.7786777			
Phase-1 RCT-82		0.9313718	0.91627	0.8603284	0.8793117	0.8505064	0.8914123	1.1427218	0.9833355	1.0921866	0.8822463	0.961531	0.8937655	0.8864794			
Sensescence marker protein-30		0.5128356	0.7288904	0.2625777	0.3415793	0.7898583	0.6336256	0.5463171	0.3505011	0.3040859	0.3658148	0.7777901	0.8961045	0.6803365			
Melanoma-associated antigen ME491		1.458863	1.2571139	1.358107	1.8041399	0.8524907	0.8168763	0.9893549	0.9707179	0.8678796	0.8841678	1.1790683	1.2803015	0.5605118			
Activating transcription factor 3		0.8788724	2.1682773	2.4969354	1.806443	1.1929091	1.4835409	1.4524212	1.4770133	1.4586717	1.0784481	0.9751461	1.0197465	1.2017199			
Tylophosphon hydroxylase		0.7219233	0.894258	0.8631898	0.8110071	0.9884976	0.8817688	0.9493012	0.758134	1.047817	0.9742843	0.6806892	1.0130686	0.9704405			
Zinc finger protein		3.4983404	5.8323665	20.65312	16.238869	0.9671843	0.8700054	0.8209398	0.8739849	1.0571684	1.3479788	0.7468646	0.9020134	1.2223456			
c-myc		1.3780408	2.6980962	4.500065	5.7699766	1.1795896	1.1368349	1.5797365	1.2305578	1.280541	1.1258637	1.180752	0.8447694	1.0837215			
Cholesterol 7-alpha-hydroxylase (P450 VII)		1.0105151	0.9307327	0.5551805	0.7264097	0.7046924	0.8406197	0.7502559	0.7788107	0.8876715	0.8350323	0.9215853	0.6708438	0.7187631			
Femlin H-chain		1.120655	1.0574668	1.3032757	1.181676	1.7259506	2.124993	1.3000276	2.3920352	1.6393383	1.9972931	0.7563725	0.9198926	0.9576925			
Phase-1 RCT-197		1.1259809	1.1483268	1.0638889	1.0998082	0.9297582	1.0033861	0.9800899	0.9506702	0.9876339	1.1544585	1.1133681	1.1211852	1.2700075			
Phase-1 RCT-179		2.3926985	1.9514495	3.7769787	3.514739	0.8294568	0.8653722	0.600083	0.8274637	0.7077777	1.008307	1.1079361	1.6419836	1.4292796			
Phase-1 RCT-15		2.389244	2.4871126	3.2787433	4.6626782	1.0189652	1.2284777	1.3648182	1.4216772	1.2252609	1.8602882	0.9749798	1.2182475	1.2366718			
Agmatinase		2.6214087	1.5724729	3.2326745	2.7559874	1.36282	1.4033361	1.531487	1.4060395	2.9147005	0.8486552	0.8117248	0.8025778	0.8025778			
Phase-1 RCT-49		3.648836	3.0263925	3.6449368	5.7354307	1.0370276	1.096836	1.1717484	1.0338758	1.082748	1.0952854	1.1106856	1.1849788	1.1604351			
Carbonic anhydrase III		0.2040876	1.052352	0.1343771	0.1308409	0.6068291	0.3565591	0.9189937	0.1289248	0.2566063	0.1623811	0.4942864	0.1518015	0.3387672			

Proliferating cell nuclear antigen gene	1.1873177	1.0491829	1.1203165	1.1143941	0.9657635	1.0552827	1.0787197	1.1503438	1.2173884	1.0609464	1.0504204	0.8805561	0.8633866
Integrin beta1	1.5779473	2.133643	3.3411343	4.0190945	1.2312363	1.3565775	1.1215075	2.066766	1.2066884	1.8846242	1.2449186	1.2937834	1.2828424
Caspase 6	1.2755684	1.0899495	1.256474	1.3281011	1.0951895	1.1519257	1.3039888	1.346237	1.1349472	1.2345183	1.1349472	1.0082724	0.9897853
Phase-1 RCT-116	0.9908677	1.092023	1.309892	1.1826068	1.093061	1.5732199	1.8441603	1.5890355	1.6828046	2.5646858	1.334231	1.0260279	0.9354928
Phase-1 RCT-109	1.0133312	0.7945779	0.8877087	0.6162551	1.4624946	1.7340869	1.232109	1.606749	1.1282215	1.6901292	1.4259655	1.8166628	1.6651722
Phase-1 RCT-71	1.5412561	1.4400856	2.304412	2.602543	0.9680542	1.0674455	0.984124	1.1053451	1.2155167	1.1119555	1.1681427	1.1653315	1.1954005
Elongation factor-1 alpha	1.2136638	1.1315401	1.4706717	1.2901378	1.1241882	1.014994	0.7034068	1.0409089	0.9001384	1.1790899	1.0570681	1.2862569	1.2006648
Phase-1 RCT-169	1.208126	3.927512	2.0512316	5.9334583	0.863557	1.0413496	1.3507943	1.0017965	1.2806185	0.9413849	0.9545678	0.754887	0.844219
Pyruvate kinase, muscle	2.474455	2.0192885	3.5376008	2.9893872	1.2199836	1.2529191	1.0947082	1.2724628	1.1970702	1.5225846	1.2466319	1.1463708	1.1872618
Nucleosome assembly protein	0.8932825	0.6199922	0.9084436	0.8458162	1.1175299	0.9506919	0.5912249	0.5295967	0.733227	0.9041942	0.801837	0.6231393	0.6522236
Phase-1 RCT-127	3.8954964	1.4004384	2.4070141	2.910687	1.00687	1.053436	1.1599785	1.040891	1.003346	1.0392346	0.9632883	1.3328681	1.3328681
Iron-responsive element-binding protein	0.8725869	0.7815192	0.4980847	0.4682378	0.7967762	0.6607793	0.6482077	0.9166442	0.8242433	0.8962215	0.8982735	0.9376396	0.7964942
Phase-1 RCT-72	1.0877193	0.9645977	0.9928149	0.9207147	0.8603478	1.1775148	1.0167748	0.9562966	1.0606049	0.9546486	1.3602147	1.5189047	1.2960658
Phase-1 RCT-144	3.1176043	2.4285176	3.5942986	4.4746027	0.8841828	1.0156157	1.0167767	1.0562966	1.0606049	0.9546486	1.3602147	1.5189047	1.2960658
Phase-1 RCT-242	2.3161387	6.9508797	4.933473	4.459887	0.9354186	1.0391505	1.4243038	1.2582949	1.2363948	1.2231609	0.9338557	0.9475504	0.9666293
17 beta hydroxysteroid dehydrogenase, type 2	0.8965371	0.3727773	0.5286655	0.518855	1.0351092	0.9963641	0.4123494	0.2731903	0.2900973	0.6398263	0.5778986	0.2714085	0.2342754
Phase-1 RCT-70	1.1468987	1.172485	1.1482631	1.1419212	0.9566515	1.1593261	1.9536109	1.2030113	1.3140118	1.1896722	1.166231	1.0906293	0.8753531
Ribosomal protein L13A	1.3171009	1.1635101	1.8168858	1.5273411	1.7436887	2.1965175	1.2156801	2.020708	1.1460273	1.8621706	1.5412277	1.8160518	1.7179817
Cytochrome P450 2E1	1.3057531	0.8478242	0.5055624	0.8444709	0.7968885	0.6166129	0.5902626	0.584384	0.5954781	0.8424572	0.8442712	0.862747	0.9585818
AT-3	1.1939004	1.0578861	1.2179605	1.1744331	0.8774751	0.9185972	1.039477	0.9394153	0.8521118	0.9398697	1.0731682	1.1536281	1.0453157
Phase-1 RCT-270	0.4908581	0.9087259	0.3759474	0.2921523	0.8298319	0.5071461	0.8152669	0.6639934	0.8741179	0.8351779	0.510878	0.4737396	0.6536524
Phase-1 RCT-123	1.0860355	0.9285632	1.1748255	1.0117396	0.9511458	0.9128588	1.1499667	0.9223173	0.8331618	0.8485045	1.0332271	0.9277999	0.946074
Alpha-2-macroglobulin, sequence 2	1.0340784	1.1697701	1.8960365	2.055635	0.720937	0.649959	0.7125688	0.8434399	0.7752912	0.8570001	0.9039162	0.8878998	1
Matrix metalloproteinase-1	1.1912407	1.4351726	2.035392	1.5597044	1.88073	2.1468914	1.5892157	2.2537587	1.720292	1.8657224	0.8376041	0.953397	0.9889936
Beta-tubulin, class I	1.0230223	1.0003073	1.4682993	0.8410493	1.0758952	1.2991679	1.4226933	1.0383526	0.7209998	0.9383007	1.0093101	1.4135209	0.9034575
Phase-1 RCT-161	0.9102384	0.9405335	0.903203	0.8483805	0.9394953	0.7614825	1.4948017	0.6145361	0.6551154	0.7430937	0.6540843	0.4121313	0.5094573
14-3-3 zeta	1.5434755	1.7089909	2.2698455	2.927547	1.1347823	1.4992849	0.9918877	1.3561543	1.2397512	1.4723117	1.0915642	1.0659643	1.0202637
Siem cell factor	0.7200591	0.7034744	0.5718657	0.5920738	0.8181506	0.6903132	0.7097413	0.4968778	0.5466166	0.5858542	0.8795533	0.9902129	0.7905756
Macrophage inflammatory protein-2 alpha	1.8937194	2.0735016	1.8752743	1.9107991	0.9728206	1.3845319	0.9662155	1.8975666	1.4923637	1.81745	1.1189542	1.6698467	1.3748304
Thymidylate synthase	1.0174305	1.049172	1.0876154	1.0398474	1.0683302	0.9348688	0.9667164	1.0370343	0.994744	1.0244415	1.0200262	0.8720166	0.8695486
C-Jun	1.4034392	3.9654562	3.0143523	4.009134	0.9456323	1.4562079	2.2498882	1.5425799	1.8548172	2.2105355	1.1996566	1.0961754	1.1306467
Superoxide dismutase Mn	2.941786	8.289341	14.135337	17.269742	1.1861475	1.18179	1.0823968	1.2765156	1.0854034	1.2015598	1.3857142	1.5930569	1.8564385
Phase-1 RCT-73	0.7926196	0.9005327	1.0844397	0.9995455	0.9181056	0.9447869	0.838691	0.8918687	0.688558	0.9183046	0.9932917	0.8367233	0.8951778
Macrophage inflammatory protein-1 alpha	1.1345794	1.0463153	1.2573816	1.1030653	1.0180987	1.1414776	1.7150396	1.0700101	1.3797919	1.0195762	1.0115398	0.7866281	0.8223891
Phase-1 RCT-214	0.8313226	0.8138953	0.5781573	0.6637799	1.0363982	1.0669336	0.8625286	0.7405044	0.7018666	0.6654378	0.895938	0.9440229	0.8855812
NADH-cytochrome b5 reductase	0.4703055	0.7905841	0.4978043	0.3708405	0.9688585	0.590559	0.8149056	0.6092978	0.7507146	0.5280331	0.8774212	0.7847068	0.853784
Interleukin-1 beta	1.2082739	1.2146724	1.4957434	1.2936944	1.5209517	1.868814	1.4461628	2.0374193	1.5717815	1.5758362	0.8990706	0.9854895	1.0185239
NADP-dependent isocitrate dehydrogenase, cytosolic	0.3197886	0.7582756	0.276826	0.2174282	0.8994059	0.7530251	0.6116083	0.6067706	0.6340609	0.5102063	0.6779712	0.8631481	0.6888476
Phase-1 RCT-289	0.5567026	0.9430446	0.7342678	0.6408615	1.0281671	0.8338355	0.991003	0.8534488	0.7687818	0.8071061	0.7652034	0.9160388	0.9959451
Glutamine synthetase	2.2179005	2.5139816	3.0847185	3.1190624	0.6307512	0.8000729	0.8706603	0.4758248	0.6574614	0.8403165	1.1767477	1.3342221	1.4024062
Phase-1 RCT-182	0.4477195	0.6341929	0.6077408	0.4817501	0.8022699	0.5102434	0.7889959	0.6101838	0.8576264	0.5828691	0.6888819	0.8413258	0.9046662
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.2142897	1.5677243	2.0285778	2.088915	0.942285	0.9588336	0.6383004	0.992876	0.9097138	1.0861177	1.0265228	1.6217974	1.4206741
Extracellular-signal-regulated kinase 1	0.3001081	0.8117772	1.0510207	0.8819862	0.60866	0.3840543	1.0261567	0.1917026	0.3320151	0.2912508	0.5924933	0.2031787	0.3966684
Enerin	0.8713257	0.9772813	1.3578102	0.8819862	1.2181295	1.1767237	1.0761061	1.0195053	1.05902	1.0460066	1.0233421	0.9121569	0.9121569
Phase-1 RCT-78	0.834091	0.9409019	0.7960627	0.7415028	1.0020458	0.745707	0.9129555	0.7655228	0.9055641	0.8617407	0.8731573	0.6637717	0.7826992
Phase-1 RCT-212	0.9327828	0.8622806	0.8639635	0.8662546	0.9573777	0.865335	1.0099642	0.7554106	0.845422	0.9048709	1.024717	1.0452812	1.0314667
Phase-1 RCT-188	0.5341207	0.770514	0.9360334	0.7828058	0.9360334	0.7828058	0.7139158	0.599202	0.5144773	0.8373241	0.9898438	0.9681823	0.9681823
Lysyl hydroxylase	1.6817493	1.4336053	1.4445691	1.5043573	0.7901776	0.7778358	0.9108456	0.6067131	0.4256047	0.8233594	1.1819198	1.3311744	1.4157789
Phase-1 RCT-55	1.3323337	1.0170738	1.1765746	1.3183376	0.972007	0.9817303	1.5679711	0.9930617	1.2771955	1.1327554	0.9097688	0.9401507	1.0778093

MHC class I antigen RT1.A1(f) alpha-chain	1.4238466	1.9528731	1.8834743	2.8017783	1.2590507	1.8106252	1.8783357	1.6321218	1.8973975	2.0893815	1.0904845	0.8449211	0.8958194
Phase-1 RCT-40	0.8441833	0.9503122	0.9162981	0.8891984	0.8249916	0.7191528	0.6595402	0.6625125	0.6895482	0.5673148	0.8237845	0.7740365	0.8344768
Cytin G	2.1775928	3.4404607	7.979724	7.341203	1.2998382	0.862676	1.4873523	1.1578024	1.4088508	1.5097153	1.5628607	1.2649181	1.2373999
Peroxisome proliferator activated receptor gamma	1	1.0215765	1.009515	0.9727257	1.0453944	1.0425767	1.1809854	0.1745851	1.0844345	1.0183909	0.8912873	0.9397514	1.2254882
Phase-1 RCT-280	0.7275981	0.8733756	0.7540083	0.861401	0.8549527	1.007301	0.8703985	0.8787721	0.8471609	0.8787558	0.9135633	0.644517	0.8335333
D-dopachrome tautomerase	0.5841223	0.6413037	0.6597087	0.5320147	0.8931726	0.5649867	0.9256513	0.6101964	0.809477	0.8099513	0.7137804	0.8595423	1.0034013
Phase-1 RCT-287	0.828557	0.9359778	0.9963806	1.1918628	0.671769	0.7654686	0.625103	0.7938092	0.6993159	0.7628475	1.2399744	1.2551234	1.1686118
Phase-1 RCT-119	1.2153145	0.8162751	1.1692823	0.8933279	1.1161451	0.8688476	0.9177563	0.9898294	1.1084354	1.042591	0.5374739	0.9217802	1.0017986
Thioredoxin-1 (Trx1)	0.8671653	0.9458941	1.0023035	1.0982682	0.9099162	0.9909068	0.830615	0.993747	0.8653913	0.8608149	0.9930579	1.1816565	1.234687
Phase-1 RCT-225	1.4160423	0.6521165	0.5427983	0.9860172	1.2687088	0.9506828	1.1373031	0.796353	0.7849852	0.6127531	1.3494039	1.4222478	1.3610284
Protein kinase C alpha	1.1121504	0.9189212	0.9821584	0.948838	0.8521274	0.9080682	1.010042	0.9555084	0.8517512	0.9262028	0.9921727	1.156413	1.0335637
Phase-1 RCT-87	0.9042152	1.0286783	0.9351091	1.0220834	0.799032	0.8384275	0.8356084	0.8287216	0.9207022	0.9875403	0.9875783	1.0826209	1.1609898
Phase-1 RCT-59	1.9504247	2.6803663	3.4525228	3.8167098	0.9577852	0.912524	1.0879643	1.1846848	1.2377837	1.5810862	1.0025473	1.1281988	1.0807378
Ca ²⁺ -binding protein	0.7649313	1.1219428	1.285401	1.2177256	0.8936207	0.9056285	0.6300583	0.6565414	0.5762771	0.6627492	1.0005138	1.3059664	1.3145951
Phase-1 RCT-204	2.257046	1.5538791	3.2973871	3.36887	0.9154688	0.8331388	1.2180467	0.8704483	1.0070261	0.9389781	1.0618204	1.0114563	1.086424
Camitline palmitoyl-CoA transferase	1.1330408	0.995792	0.9189253	1.1786226	0.9879704	2.1016583	1.1201242	1.2882736	1.2848871	2.1152134	0.9368447	0.8186537	0.8162028
8-oxoguanine DNA glycosylase	1.350742	1.2064193	1.1115209	0.9493023	1.0468246	1.0056523	1.3216493	1.0300897	0.9212371	0.9585341	1.0740162	1.0395677	0.9692444
hFrev107	1.1898531	1.1204135	1.0682408	0.9999989	0.9324258	0.8622732	0.9906792	0.8448257	0.8422323	0.825224	0.9103887	1.0997518	0.8523135
Preproalbumin	0.6419438	0.862693	0.8034355	0.7805585	1.0962775	1.0494729	0.7084287	0.993016	0.6824648	1.139516	0.7873324	0.7116489	0.8127687
Phase-1 RCT-177	0.6879447	0.8908346	0.9438881	1.0326787	0.8672021	0.9464925	0.681808	0.8736814	0.7834948	0.8735638	0.9510198	0.834835	0.9441508
Phase-1 RCT-110	1.0830106	0.9686695	0.8314909	0.9587038	0.9102574	0.9688659	1.2620728	0.9530034	1.0327266	0.9518606	1.0211344	0.8280835	0.8492154
Phase-1 RCT-227	0.8079372	0.7196278	0.6383484	0.6926483	0.8467624	0.5918858	0.617042	0.7621052	0.7423687	0.6124045	0.9153019	0.8645469	0.8119186
Neuropeptide Y	0.8501234	1.286338	1.1445181	1.0938875	0.9732333	1.0192788	1.3289433	0.987401	1.2345253	1.0190763	1.0213194	0.9999999	1.0373305
Phase-1 RCT-277	1.0240241	0.9335889	0.8668065	0.8605851	0.9718253	1.0040847	0.5241712	0.8011528	0.7220877	0.6062075	0.7879899	0.8910313	0.863556
Phase-1 RCT-229	0.881638	0.6764818	0.8510202	0.6981545	1.0807405	0.9462866	1.2811127	0.9572815	1.1229413	1.0082563	0.9623187	0.7879899	0.8910313
Choline kinase	1.1566594	1.4619123	1.2527808	1.5622853	0.9961212	0.9881606	1.4096638	1.0887664	1.1541944	1.0558324	0.951274	0.8317233	0.9577274
Phase-1 RCT-20	1.1315469	0.9623128	1.0856629	1.0565234	0.9482463	0.9319236	1.1789237	0.9841705	1.1179793	1.0872451	1.0466816	0.9961483	0.9587385
Phase-1 RCT-248	1.0248734	0.955228	1.0154396	0.9869937	1.3358105	1.5456758	1.3484335	1.5001171	1.1379092	1.1787723	1.2747824	1.080392	0.9997642
(1) Gene expression data for 6 hour													
timepoint are presented as mean ratio of													
treatment/control for all 6 hour predictive													
genes (Table 20).													
(2) Compound and dose abbreviations as													
in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for													
compound-dose group at 72 h: yes,													
necrosis observed; no, no necrosis													
observed													
(5) Predictive gene (as in Table 20 and as													
included in Table 32)													

Table 34. Expression Data for 6 Hour Timepoint (1)																						
Compound/Dose (2)		CYCA 80	CYCA 80	CYCA 80	DEX 8	DEX 8	DEX 8	DEX 8	DEX 30	DEX 30	DEX 30	DEX 30	DIF 25	DIF 25	DIF 25	DIF 100	DIF 100	DIF 100				
Animal Number (3)		431	432	433	1341	1342	1343	1351	1352	1353	241	242	243	251	252							
Liver Toxicity Necrosis Classification (4)		no	no	no	no	no	no	no	no	no	no	no	no	no	no							
Gene Name (5)																						
Gadd153		1.0448542	1.1062808	1.2771766	1.2676183	1.4142634	1.6155117	1.1178005	1.3884002	1.4505817	1.3836128	1.3886435	1.2758768	1.2714417	0.8517901							
Interferon related developmental regulator		1.3141092	1.3790201	1.2410325	0.8615118	0.8937532	0.8694944	1.0678143	0.8943749	0.930337	1.1698748	0.7850649	0.992474	0.8120433	1.0738144							
IFRD1 (PC4)		1.029898	1.3377413	1.183672	1.0029364	1.0997725	1.0882101	0.8623245	1.0639237	1.085857	1.2509584	1.267821	1.3549134	0.839346	0.9179503							
ID-1		1.6708524	1.975271	1.6783271	0.9581872	1.106588	1.1350757	1.0485005	0.9751487	1.2947824	0.7400774	0.6369238	0.5929802	0.860744	0.8078308							
Insulin-like growth factor binding protein 1		0.9903206	0.9619927	0.9074218	0.708931	0.7487857	0.8138657	0.7794031	0.8852137	0.5822988	1.0803054	0.9015347	0.769694	0.5354585	0.7408367							
NIPK		0.9356622	1.0353138	1.0311953	1.0012553	1.1225268	1.133866	1.1998295	1.3079531	1.1411738	1.3499454	1.3055284	1.1657332	1.2993397	1.1766089							
Sarcoplasmic reticulum calcium ATPase		1.2492818	1.2282479	0.9598108	1.0001818	1.052806	1.1955922	1.2515774	1.1613208	1.1398768	0.7185942	0.8378656	0.74305	0.5695874	0.7126101							
Phase-1 RCT-207		1.0974792	1.2349092	0.9861664	1.3837559	1.3576558	1.3743293	2.2889984	1.8582406	1.6087422	0.9766804	0.967289	0.9630512	1.0655282	1.0652405							
Acetyl-CoA carboxylase		1.0507295	1.0813822	1.0380164	1.0907692	0.9575013	0.9314078	0.7753624	1.0878452	1.1677774	1.041591	0.9699795	1.0282824	1.2078682	1.1059489							
Cathepsin L, sequence 2		1.6041257	1.6025063	1.9211249	0.9383003	0.8948854	0.9191521	1.0548416	1.0639824	1.0744483	1.3088584	1.087022	1.598235	1.2622269	1.074526							
Glucokinase		0.997029	0.8238276	0.7480798	0.7225674	0.8764944	0.7566172	0.6425842	0.8671283	0.8320908	1.1187791	1.3953642	1.1708927	1.4096628	0.7684111							
Gadd45		1.0056016	1.2379446	1.1710308	2.0514271	3.5367138	2.8699548	2.092824	1.7448985	1.8658012	1.4027382	1.1639798	1.1744477	0.9952292	0.9214307							
Phase-1 RCT-18		0.8774132	0.9586197	0.8512021	0.9715411	0.9165813	0.8352406	0.8315123	0.892825	0.8900819	0.8773513	0.9031503	0.9332957	0.9856342	0.9959967							
3-beta-hydroxysteroid dehydrogenase (HSD3B1)		1.2546198	0.9705944	1.0345578	0.8492803	0.8169687	0.7763053	0.9429565	0.8351318	0.9063346	1.0077075	0.6072537	1.0339527	2.0005724	1.3610573							
Phase-1 RCT-221		1.0526004	1.0601437	1.1534904	1.1059342	1.0538336	1.0784458	1.0041517	1.1080814	1.1173898	0.77689	0.8083068	0.8545653	0.7586259	0.8183489							
Heme oxygenase		1.1714281	1.4153603	1.5725106	0.7801089	0.7407051	0.9325072	0.8993672	0.9894755	1.0894725	1.5041407	0.9269143	1.1719398	0.9458494	1.4612812							
Cyclin dependent kinase 4		1.0884091	1.320963	1.4068112	1.0790273	1.0699094	1.0953559	0.942556	1.0487453	1.1181413	1.8922783	1.4025822	1.5558413	2.9893353	1.3325266							
Phase-1 RCT-75		1.0132331	1.0354784	0.9253702	1.0288439	1.0893854	1.0608279	0.8736609	1.023999	0.9693367	1.1268014	1.116383	1.0740708	1.5082092	1.0836552							
Phase-1 RCT-65		0.799968	0.8365154	0.8274743	1.0342023	1.1050642	1.1462489	1.3272464	1.4315822	1.0502143	1.2168668	1.3931428	1.1058694	1.1793308	1.0538352							
Cytochrome P450 1A1		0.8729764	0.9542013	0.6481403	0.8518818	0.9803349	0.831304	0.8913962	1.0608116	1.0316557	0.999652	0.8746811	1.0538481	0.7374761	1.0045917							
Peroxisomal multifunctional enzyme type II		1.1292479	1.0320228	1.1004341	1.1097003	1.0085999	1.026173	1.2851489	1.0277601	1.1628624	0.9949061	1.352535	1.2344882	1.836753	1.4250157							
DNA topoisomerase I		1.1604328	1.2616745	1.2975012	0.8612108	0.8719967	0.9282814	0.7038006	0.7378588	0.9114692	0.918578	0.7266573	0.7973736	0.9280368	0.8689088							
Focal adhesion kinase (pp125FAK)		0.9804457	1.0626135	1.0201217	0.8539292	0.9412446	0.84095	0.8282015	0.8159593	0.8470408	0.8809897	0.7685088	0.7611753	0.3541577	0.7950546							
NGF-inducible anti-proliferative putative secreted protein (PC3)		0.8392075	0.8357265	0.8228612	1.0475305	0.8078878	0.854571	0.8809096	0.9175451	0.8719331	0.8334383	0.8039421	0.63283	0.6364878	0.8026792							
Phase-1 RCT-82		0.8419499	0.8468084	0.7814538	1.0922055	1.1130445	1.142924	0.938683	1.045203	0.9969599	0.7907858	0.8280001	0.8425973	0.870289	0.9206427							
Senescence marker protein-30		0.5628416	1.1559547	0.7006141	0.5275925	0.5153432	0.6271566	0.4328918	0.4013995	0.3287787	0.6928045	0.8946214	0.73067	0.9923416	0.5960037							
Melanoma-associated antigen ME491		0.8976139	1.1357034	1.3080673	0.9766037	0.8934295	0.8713636	1.0901451	0.9841162	0.9561136	0.8534896	1.290025	0.880567	1.1540784	1.1918983							
Activating transcription factor 3		0.8811202	0.9654024	0.9266759	0.9532972	1.2260133	1.1333228	1.0412967	1.0748057	0.9421904	1.2269087	1.4822936	1.3552039	2.243398	1.4424229							
Tryptophan hydroxylase		0.8744866	0.8064646	0.8904945	0.730473	0.8443807	0.6650286	0.7685609	0.7068304	0.6489818	1.2861114	1.1873051	1.2228482	2.5557704	1.0591683							
Zinc finger protein		1.0896904	0.8845428	0.9043073	0.8547971	0.8073008	0.8154201	1.0725034	0.9140933	0.7835156	1.017046	1.0859337	0.8408397	1.1405156	1.0949991							
C-myc		1.0686601	1.1385633	1.0419921	1.1988042	1.4652221	1.5397022	1.2892656	1.7051003	1.7871655	1.5070794	1.5687894	1.5548897	1.2679186	1.0942013							
Cholesterol 7-alpha-hydroxylase (P450 VII)		0.8200423	0.7330147	0.7024047	0.7875821	0.9425888	0.8550745	0.7105084	0.8881279	0.8076834	1.2069831	0.7874809	0.9589351	0.6997881	0.876829							
Ferritin H-chain		1.0956482	0.7133642	1.0063157	1.102701	1.0742872	0.9368315	0.9607744	0.9933892	1.0881922	0.7006284	0.7452266	0.7640601	1.0190778	0.702684							
Phase-1 RCT-197		0.9971616	1.1335856	1.0945284	0.8987544	0.9054094	0.9073995	0.9847385	0.8579074	0.9470584	0.9726327	0.8747373	0.84077	0.8188993	1.057327							
Phase-1 RCT-178		1.7407955	1.9863668	1.7229998	0.9872915	0.951387	0.9325966	1.413844	1.3673564	1.2220016	0.9853198	0.8566204	0.8705891	1.0240241	0.8715378							
Phase-1 RCT-15		1.1572878	1.0976168	1.3326694	1.0463127	0.896919	0.899007	1.4741883	1.3337117	1.191709	1.7794156	1.8029552	1.7932677	6.787993	2.6882167							
Argininosuccinate lyase		0.9207423	0.8909263	0.8716806	1.0584291	0.8346627	0.9690883	1.6101395	1.3793374	1.0466518	1.5252221	1.461911	1.569452	1.6442823	1.3705016							
Phase-1 RCT-49		0.9268975	1.236216	1.1589782	0.9014687	0.8526791	0.8725641	1.1160021	1.0640081	0.9228432	0.8975433	0.8570516	0.9779048	0.9174421	1.0353282							
Carbonic anhydrase III		0.3477499	0.1476942	0.3266841	0.5732966	0.5964452	0.7135139	0.563068	0.5366234	0.3332017	0.5133709	1.4482896	1.4290621	4.6755233	0.5117113							

Proliferating cell nuclear antigen gene	0.9836865	1.0815179	0.8121728	1.0752847	1.3068941	1.4247342	1.9005954	1.2650155	1.3149804	1.186911	0.9438652	0.8869636	0.6060299	0.7398226
Integrin beta 1	1.1610616	1.3494857	1.4490657	1.3349885	1.3099735	1.4763737	1.2379732	1.2603636	1.5112165	1.0167339	0.8324475	0.8058949	1.3058773	1.0266104
Caspase 6	1.0017357	0.9876387	1.0481861	1.1006617	1.0060401	1.3827395	1.1101452	1.1449169	1.2995298	1.273789	1.1723615	1.0759863	1.4007044	1.1605276
Phase-1 RCT-116	0.9950206	0.8826702	1.0719081	0.948579	0.932105	0.9339993	1.0264867	1.2620486	1.2628599	3.7507155	0.4036056	4.9414487	2.0524855	1.3890414
Phase-1 RCT-109	1.2812439	1.8000199	1.7346011	1.1542435	1.2114031	1.1230981	1.2200902	1.5402095	1.400946	0.8138423	0.6791973	0.5786843	0.5758895	0.8740685
Phase-1 RCT-71	1.0133069	1.170251	1.0406955	1.345172	1.2126992	1.404182	1.2031835	1.9540204	1.5232381	0.8619935	0.8274381	0.9871832	0.5725247	0.8398779
Elongation factor-1 alpha	1.2842897	1.3338126	1.2158965	1.0828885	1.1276889	0.9442836	1.009811	1.069449	1.1323607	1.1356872	1.1183382	1.2151353	1.5381154	0.9617647
Phase-1 RCT-169	0.9421971	0.7816191	0.7981448	1.053975	1.1393448	1.1699146	1.0354978	1.1122804	1.1024202	0.7128326	0.932589	0.8971795	0.8533513	0.7698306
Pyruvate kinase, muscle	1.047775	1.0649478	1.3313003	1.0765637	0.9614993	0.9330426	1.019728	1.1153303	1.1033606	1.1149588	0.7234067	0.90957	0.7380998	1.1972934
Nucleosome assembly protein	0.8056495	0.7347528	0.6461248	0.7220354	0.687533	0.781491	0.7186268	0.7463301	1.016717	1.1195881	0.7234067	0.90957	0.7380998	1.1972934
Phase-1 RCT-127	0.9953476	1.3650078	1.2906998	1.1763849	0.8647643	1.045848	0.911347	0.8830587	0.8191499	1.0961393	0.9309046	0.9256748	0.7498946	1.0683265
Iron-responsive element-binding protein	0.9259862	0.8298521	0.7380688	1.2816826	1.5969173	1.4640955	1.1725314	1.1640053	1.6355908	1.0352178	0.7999178	1.1832844	0.7847299	1.1222669
Phase-1 RCT-72	0.882441	0.821406	0.8243071	1.1128618	1.2165186	1.224332	1.1047316	1.1632466	1.1491065	0.9404566	0.7984008	1.0295455	1.0164621	0.9139234
Phase-1 RCT-144	1.21975	1.2631913	1.641503	1.2642709	1.1573022	1.2043765	1.7359122	1.4481487	1.5749441	0.9593955	0.9278081	0.8853776	1.1983722	1.0654476
Phase-1 RCT-242	0.9184537	0.9891263	0.9770286	1.291409	1.2973025	1.3919817	1.3813822	1.2416817	1.2421622	0.9835621	1.1220657	1.0486845	1.1194212	1.0453908
17-beta hydroxysteroid dehydrogenase, type 2	0.4816348	0.3804571	0.2994705	0.6617636	0.6250637	0.7619933	0.6443807	0.69302	1.0982496	1.1633336	0.578316	0.7876908	0.6482649	1.9894202
Phase-1 RCT-70	0.9020996	0.8516315	0.8589156	1.1202481	1.300387	1.2997338	0.8473226	1.0448771	0.9381395	0.9523955	0.9804366	0.9450029	0.9186268	0.940485
Ribosomal protein L13A	2.3402135	2.235569	1.8361284	1.2827929	1.3618011	1.2714775	1.1614312	1.5147691	1.626859	1.0750962	0.9502932	0.7166288	0.561884	0.5661899
Cytochrome P450 2E1	0.9210281	1.101815	0.8958855	0.7820702	1.0882152	1.0545316	0.7129645	0.7129645	0.8269439	0.9114155	0.8971928	1.082249	1.4985788	1.208709
AT-3	0.8983433	1.0104859	1.0461462	1.0248334	0.9232575	0.9262161	0.9349469	0.9060373	0.9031281	0.9976614	1.0689057	0.9859455	1.1461328	1.076572
Phase-1 RCT-270	0.5837159	0.4134402	0.4870429	1.3768811	1.1926533	1.2266888	1.819257	1.4584994	1.5315052	0.6152946	0.7876816	0.7231596	0.8639491	0.8048289
Phase-1 RCT-123	0.9454186	0.9404185	0.9357019	0.8762747	0.8933085	0.9628746	0.9666711	0.9797359	0.9073246	1.1024768	1.114093	1.0483193	0.9419664	0.9598299
Alpha-2-macroglobulin, sequence 2	1.2952836	1.1325079	1.0337228	1.0788192	1.0688149	1.1330042	1.0500067	1.4508644	0.9458728	0.7219253	0.6696338	0.810857	0.308158	0.690736
Matrix metalloproteinase-1	1.0782433	0.8595834	1.006273	1.129776	1.0463583	0.9434875	0.9661409	1.0331739	1.1545876	0.7912079	0.8154131	1.0439895	1.1845538	1.7385538
Beta-tubulin, class I	0.9851387	1.1592232	0.794778	1.0421367	0.8633926	0.9166709	0.9343092	1.2449441	1.2044665	1.2288083	2.543355	1.6928046	1.181457	1.1845443
Phase-1 RCT-161	0.7814521	0.844448	0.6116831	1.0538521	0.9347342	1	0.7928577	0.9201918	0.9120823	1.1744668	2.0702195	1.6858728	1.2710149	0.9750736
14-3-3 zeta	1.1445826	1.1136858	1.0505913	1.167013	1.3180228	1.445074	1.3499732	1.3749372	1.2006785	1.1885028	1.139614	2.060826	1.1964818	1.1337401
Stem cell factor	0.7453763	1.1172677	0.8318036	0.5029928	0.5178375	0.6315113	0.5488306	0.5445715	0.4089551	0.9682111	1.0397078	0.896601	1.1964818	0.6807523
Macrophage inflammatory protein-2 alpha	1.5260947	2.3908202	2.145872	1.2837749	1.3842411	1.813868	1.3204743	1.3485932	1.3360571	1.0865799	1.2007248	1.3877265	0.8618945	0.8197633
Thymidylate synthase	1.080214	0.9775475	0.9295596	0.672771	0.8202269	1.141326	0.6735051	0.784994	0.6170235	1.2070657	1.12871	0.9659622	0.7437973	1.2124983
C-Jun	0.9618714	1.0768805	1.1322987	1.1203958	1.5576555	1.8653525	1.5094707	1.585089	1.4556537	1.1943449	1.2137611	1.2369246	1.1407274	1.0762353
Superoxide dismutase Mn	1.6509271	3.5769284	2.359768	1.0498444	1.1783683	1.2190272	1.0162449	1.1414894	1.0854832	1.2079835	1.2678173	1.2752844	1.4448665	0.9747182
Phase-1 RCT-73	0.8794668	0.8286149	0.9943274	0.9680381	0.9378202	0.858408	0.9493389	0.8650031	0.938485	1.140803	1.1397561	1.2475387	1.691877	1.1430065
Macrophage inflammatory protein-1 alpha	1.0985497	0.851912	0.9754973	1.1755428	1.3509679	1.3521217	1.0310795	1.1670322	1.2244252	1.3512604	1.7081254	1.3576747	1.1655714	1.1152385
Phase-1 RCT-214	0.875714	0.7642539	0.8336229	0.9206429	0.8071424	0.7919713	0.5956691	0.6044087	0.75777235	1.521052	1.4387845	1.3272338	1.3554646	1.3219737
NADH-cytochrome b5 reductase	0.8982445	0.6814376	0.6929386	0.8102948	0.6703005	0.8403298	0.7068526	0.7087764	0.6204653	0.8140621	0.9607474	0.9041074	1.060259	0.9536001
Interleukin-1 beta	1.025522	0.9060589	1.1454202	1.1197803	1.044138	0.9601806	0.9632663	1.0268818	1.1875945	0.7463105	0.778241	0.8020974	1.0211571	0.8422411
NADP-dependent isocitrate dehydrogenase, cytosolic	0.8170821	0.553668	0.684319	0.7626141	0.6396906	0.6665036	0.4987769	0.5789322	0.6172546	1.0427885	0.9471531	0.9471216	0.9001811	1.0730528
Phase-1 RCT-289	0.9622987	0.8333645	0.8965348	0.8108919	0.7288961	0.71125	0.9440518	0.8025556	0.8754532	0.7287928	0.9721758	0.8867394	0.964187	1.0445987
Glutamine synthetase	1.7561529	1.3998247	1.3604645	1.1391616	1.167084	0.9278367	1.1994969	1.0128511	1.4310333	0.9138618	0.9992308	1.0648193	1.0654869	0.997672
Phase-1 RCT-182	0.8735136	0.6863826	0.8290766	0.9323641	0.9533215	0.9500008	0.7616175	0.8179189	0.8951438	0.670976	0.8547485	0.8546137	0.9064102	0.9435321
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.8214389	1.5250822	1.6920667	1.3024272	1.3462974	1.3540735	1.6043805	1.3021775	1.5021722	0.8515219	0.9730741	0.9011802	1.1470127	0.9234148
Extracellular-signal-regulated kinase 1	0.6233946	0.9625297	0.5173074	0.572185	0.5810971	0.7431218	0.5950753	0.5922263	0.3607094	0.9647491	1.5064771	1.49592	3.9620278	0.5163719
Ermrin	1.013781	1	0.8785525	0.9509558	0.9745811	1.0351745	1.1860683	1.0215294	1.075294	1.0607293	1.0094121	1.0478067	1.0093412	1.1518376
Phase-1 RCT-78	0.9312837	0.779525	0.794976	0.9040387	0.83184	0.8732051	0.8317867	0.8841131	0.7887037	0.9243317	1.1862726	1.1682916	1.3514017	1.0214039
Phase-1 RCT-212	0.9693106	0.9231517	0.9903477	0.9994284	0.9653551	1.0638953	1.1462754	1.0378984	1.0289414	1.0289414	0.9496968	0.8365461	0.8365461	0.6587487
Phase-1 RCT-168	0.9305897	0.8179372	0.9493972	0.8540679	0.7876226	0.7621049	0.60016	0.7359533	0.7682384	0.8397428	0.9078428	0.8521743	0.8000326	1.1230217
Lysyl hydroxylase	1.1780622	1.2416638	1.3468019	1.0988544	1.1340454	0.9403684	1.0662886	0.9325529	1.228128	0.8460374	0.878957	0.9423906	1.0896537	1.0469593
Phase-1 RCT-55	0.9223744	1.0828516	0.875153	1.3644245	1.3188231	1.265233	1.2543198	2.097427	2.2929475	0.6255313	1.2862809	0.948884	1.1010554	0.9187591

MHC class I antigen RT1.A1(f) alpha-chain	0.9825664	0.9571455	0.9822382	0.9328866	1.115608	1.17681	0.9278817	0.9972669	1.0193107	1.1361642	1.3759997	1.0705084	1.0098671	1.2184107
Phase-1 RCT-40	0.8212654	0.6567124	0.7676137	0.9464196	0.8922323	0.7824384	0.5945333	0.7221244	0.8075842	0.9848355	0.9849935	1.1308156	1.0540394	0.999453
Cyclin G	1.1067655	1.333024	1.5311562	1.8598254	1.4008944	2.0356812	1.6186042	1.9774908	2.1332314	1.8658765	1.2970321	1.1560766	1.371335	0.8757824
Peroxisome proliferator activated receptor gamma	1.0130031	1.0372584	1.1668606	0.6861407	0.8551145	0.7438429	0.5281569	0.6598893	0.586164	1.3733292	1.540002	1.1375457	0.9125197	1.4012071
Phase-1 RCT-280	1.0113076	0.7665545	0.8998672	0.924785	0.8115763	0.7961428	0.98528	0.8177697	0.8098482	0.9706428	0.8620266	0.868639	1.4877573	1.3862056
D-dopachrome tautomerase	0.8615303	0.682361	0.8440763	0.9117773	0.9815373	0.7807652	0.8403492	0.78515	0.8892555	0.8235343	0.9151852	0.8910152	1.2712693	1.0440753
Phase-1 RCT-287	0.9747023	1.0218469	1.15959	0.9399977	0.87089	0.9058751	0.8755269	0.8159689	0.898797	0.9538895	1.2209545	1.1424453	1.2368983	1.1695523
Phase-1 RCT-119	0.9807099	0.821719	0.7841557	0.8754526	1.1518507	1.1723303	0.798366	1.0786844	0.8595675	0.6674957	0.6485094	0.7394286	0.6154752	0.8060798
Thioredoxin-1 (Trx1)	1.1662415	1.3173422	1.3170688	0.8563615	0.8344261	0.8634213	0.8604289	0.8518778	0.8609029	0.7468288	0.760189	0.6709374	0.6740977	0.7479546
Phase-1 RCT-225	0.802034	0.794386	0.9515151	1.0830187	1.0209783	0.8553363	0.9463546	1.0769101	1.4350773	0.9780221	0.9289701	0.6790544	0.7349236	0.5817377
Protein kinase C alpha	0.9683781	1.0531288	1.120766	1.1516237	1.0240799	1.0796145	1.1504864	1.1947953	1.3723167	0.9876698	1.0828557	1.0204557	1.0186974	0.85282
Phase-1 RCT-59	0.968205	1.0950959	1.0856353	1.157416	1.176778	1.1766019	0.9344432	1.0780852	1.0985938	1.0140395	1.0416692	1.0190272	1.0738738	0.9725691
Phase-1 RCT-87	1.1163602	1.145961	0.8559114	1.137144	1.2653494	1.1582404	1.620731	1.2076896	1.2177812	0.9689841	1.0140747	1.0173962	1.2028736	0.9725691
CaB-binding protein	1.1054826	1.0395092	1.171393	0.7774158	0.734317	0.747693	0.5953353	0.5647027	0.6716258	1.2150382	1.1215144	1.2606493	1.0761752	1.1600084
Phase-1 RCT-204	0.9266055	0.9498541	0.94058	0.8442036	0.8281834	0.9292849	0.9456191	0.9714241	0.7777904	1.0983198	1.1164016	1.0477796	0.8743846	0.7888343
Camitine palmitoyl-CoA transferase	1.0092452	1.1090086	0.8311551	1.0542902	1.0681357	1.3321323	1.7088845	1.2801865	1.278849	1.203406	1.228704	1.0805371	1.1298245	1.5281058
β-oxoglutarate DNA glycosylase	0.998879	1.0761906	0.9663116	0.8418015	0.9153228	0.8821058	0.9225683	0.9889084	1.1627195	1.1379384	1.1360916	1.0008862	0.7059372	0.876177
H-rev107	0.9053375	0.9859265	0.7357439	0.7938894	0.8255988	0.7826744	0.8201742	0.8981585	0.8000711	1.3203918	1.1928886	1.0329057	1.0655192	1.2092038
Preproalbumin	0.956306	0.5243141	0.9553706	0.949722	0.8918682	0.7891854	1.0414095	0.839368	0.8971706	2.9663517	3.4346387	4.9952087	8.43845	3.062119
Phase-1 RCT-177	0.953807	0.8263714	1.0505608	0.9439296	0.9134363	0.8463976	0.8028324	0.8267447	0.898407	1.0187092	1.0565392	1.1680287	1.5909325	1.1085057
Phase-1 RCT-110	0.9472396	0.8999551	0.8155932	0.9594933	0.7825413	0.8649815	0.8914391	0.9004355	0.8015504	1.0723927	1.0515132	0.9703156	1.0102708	0.9748475
Phase-1 RCT-227	0.8906134	0.6739017	0.8519733	0.9998111	0.8956006	0.9464451	0.8428918	0.8994045	0.854874	0.8182538	1.1084249	1.0847686	1.5027038	1.0517381
Neuropilin Y	0.9022313	1.067271	0.9395639	0.9775518	0.8616968	0.9312139	0.9539022	0.9670855	0.9274258	1.1288501	1.0788002	1.1272614	1.2508116	1.0845413
Phase-1 RCT-277	1.0019972	0.7895345	0.7717893	0.4827275	0.5085256	0.3465772	0.4308463	0.4553956	0.5337867	1.5930319	0.9535381	1.0913203	1.5153084	1.0828774
Phase-1 RCT-229	0.8727707	0.8997638	0.8299456	0.9217982	0.8900046	0.8336107	0.9152765	0.9723248	0.8286989	1.0284252	1.13827	1.1088207	1.2484306	1
Phase-1 RCT-34	0.7539919	0.7622658	0.6622658	0.9864492	1.0880926	1.1605731	1.0266217	0.9541856	0.986385	0.8029276	1.2611256	1.0773942	1.2732087	1.238476
Choline kinase	0.9428768	1.0673144	0.9042736	0.9476454	0.8707264	1.077104	1.0917766	0.9855889	0.8386984	0.9720535	0.9211294	0.8452047	0.601532	0.7567457
Phase-1 RCT-20	0.8281602	0.8453699	0.8510186	1.1548807	1.1548807	1.07104	1.0917766	0.9855889	0.8386984	0.9720535	0.9211294	0.8452047	0.601532	0.7567457
Phase-1 RCT-248	0.8897782	1.1104382	1.2257625	1.2305909	1.2822331	1.2438203	1.1301842	1.375568	1.4391384	0.7220593	0.8398526	0.737868	0.5721502	0.6804236
(1) Gene expression data for 6 hour														
timepoint are presented as mean ratio of														
treatment/control for all 6 hour predictive														
genes (Table 20).														
(2) Compound and dose abbreviations as														
in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for														
compound-dose group at 72 h: yes,														
necrosis observed; no, no necrosis														
observed														
(5) Predictive gene (as in Table 20 and as														
included in Table 32)														

Table 34. Expression Data for 6 Hour		Timepoint (1)															
Compound-Dose (2)	Animal Number (3)	Liver Toxicity Necrosis Classification (4)	Gene Name (5)														
				DMN 20	DMN 20	DMN 20	DMN 20	DMN 20	DMN 20	DMN 20	DMN 20	DMN 20	DMN 20	DMN 20	DMN 20	DMN 20	DMN 20
				1751	1752	1753	1754	1755	1756	1757	1758	1759	1760	1761	1762	1763	1764
				yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
				no	no	no	no	no	no	no	no	no	no	no	no	no	no
				253	254	255	256	257	258	259	260	261	262	263	264	265	266
				no	no	no	no	no	no	no	no	no	no	no	no	no	no
				0.7635289	2.7634692	2.1360915	3.6335547	1.7136365	3.6575553	0.892815	1.0131509	0.9471753	1	0.9856488	0.8915262	0.7963074	0.9342356
				0.7635289	2.7634692	2.1360915	3.6335547	1.7136365	3.6575553	0.892815	1.0131509	0.9471753	1	0.9856488	0.8915262	0.7963074	0.9342356
				1.2013717	2.2339319	0.9535337	0.8448098	0.7571595	0.7068728	1.1253803	1.6867974	1.3359285	1.7920336	1.598328	1.933224	0.8581449	0.8436244
				0.8772463	2.5968096	2.1279018	2.5312076	1.5163649	2.3388557	1.0330453	0.7340872	1.0959929	0.9464496	0.9415905	0.6870812	0.7769945	0.9626188
				0.5669986	1.3900056	1.0892065	1.542582	1.3891479	1.6560104	1.715455	1.4125255	1.3097118	1.5472344	1.1768588	1.1011612	0.9709111	0.9024676
				0.6297803	3.2584634	1.611702	2.3119438	0.8291291	0.7958907	1.3685408	0.7417722	0.7284553	1.0376207	0.8638328	0.7793638	0.7759761	0.9050878
				1.1698517	5.8399262	2.5078852	4.758477	0.8698319	0.9943217	0.8401021	0.8314883	0.7083351	0.7090287	0.7922196	0.7402764	0.6842389	0.8163301
				0.6515051	0.7452555	0.8651663	0.7102866	0.9232515	1.0988955	1.8868299	1.8747405	1.6152213	1.1996129	1.3267893	0.8026229	0.9133492	0.8413347
				0.9961914	4.741258	2.6280184	4.4846463	3.9457316	5.4778256	0.9336207	0.8788194	0.8998894	0.9319062	0.9231412	0.7013317	0.7746923	0.9038695
				1.0519829	0.5956724	0.7105761	0.5778525	0.6716704	0.5648819	1.200072	1.5450044	1.2386752	1.4783483	1.970416	1.1805763	0.9341453	1.1314509
				1.1716988	1.5592618	1.3544492	1.6892153	1.4018945	1.3687974	1.3885401	1.1774081	1.2847914	1.6884935	1.3247303	1.0981913	1.0770248	0.9072449
				0.6635521	0.4629579	0.6910814	0.3104679	0.9066638	1.1895432	0.7182848	1.3223231	1.521782	0.5134712	0.7758472	0.6627622	1.3439231	1.3213698
				1.3279679	4.4704843	2.6021936	4.845725	1.2906667	1.6169124	1.0843519	0.8390231	0.6449841	0.7526199	0.8417271	1.0102928	0.6496318	0.9500579
				0.9141742	1.0719212	0.9293661	1.0218002	0.9890918	1	0.9424956	1.0004622	0.9325709	0.8423117	0.8832883	0.8746072	0.8398449	0.8601617
				1.3082374	0.7266947	0.9049369	0.7387941	1.388277	0.9726747	0.5843204	1.0156319	0.9106228	0.5316004	0.7389792	0.8857649	1.4353075	1.1599782
				0.832678	1.4337858	1.2439082	1.3439407	1.1968742	1.220203	0.865025	0.9563271	1.119747	1.0156262	0.9084395	1.2961017	1.0961291	1.0634004
				1.826081	1.8679943	1.0823786	1.1872652	1.1491787	1.1615105	1.1491787	1.1615105	1.1491787	1.1615105	1.1491787	1.1615105	1.1491787	1.1615105
				1.3313055	0.9098824	0.9684255	0.9611052	1.0512015	0.9689388	0.6842401	0.982937	0.3307328	1.1240807	1.402258	1.5469931	0.900802	1.0095888
				1.0420028	1.5519956	1.1466051	1.5147408	0.9184228	0.9155694	0.8317143	0.6430831	0.5849274	0.8733171	0.7463875	0.8178837	0.978314	1.1075618
				0.9831354	1.8276304	1.415835	1.6244684	0.8410533	0.9775822	0.797013	1.324246	0.57189442	0.735356	0.8555344	0.8388093	0.7541264	0.9882625
				1.0551095	1.0601075	1.1598278	1.1406573	0.9122596	1.5773181	0.9544608	1.0566398	0.8649126	0.8042272	0.8863109	0.6848391	0.6816962	0.9857848
				1.4209152	0.5515981	0.8894243	0.6193892	1.182973	0.134292	0.8116716	0.9037236	0.8637435	1.2291635	1.0099907	1.8145205	1.3331455	1.1944213
				0.6483043	0.7625399	0.7123134	0.7307804	1.1998571	1.0128113	1.1886564	1.353949	1.5043219	1.0611229	1.4878061	2.205883	1.6372882	1.6486973
				0.8600209	0.7493783	0.9017789	0.7627725	1.1540179	1.0581989	1.2310092	1.3671725	1.6046762	1.2537608	1.3911356	1.0130914	0.9322475	1.0970393
				0.936582	2.3247848	1.2591267	1.9707054	0.7053912	0.6960234	2.0236828	0.9790741	0.9521855	1.4856517	1.203858	1.5061109	0.8499253	0.9830909
				0.6936024	0.8050432	0.8985649	0.8388701	0.8842444	1.122326	0.8663165	1.0540746	1.0047274	0.9024255	1.0506724	0.8876765	0.7518113	0.8997319
				0.545338	0.2843716	0.4042628	0.30219	0.6757381	0.5034388	1.3258038	0.9950644	1.568712	0.8061594	0.8227952	1.1829493	1.5419149	1.2839411
				1.0518959	1.1234566	1.2549	1.7350804	0.9474036	1.0358588	0.8208777	1.157494	1.2862153	1.1529762	1.3312546	1.4187051	1.1638863	1.054955
				1.3409036	4.951724	2.4110086	9.10396	1.0091802	1.1626439	0.8833569	0.8624018	0.8110191	0.6593128	0.743288	0.6863983	1.1154406	1.2974913
				1.0091383	0.9625918	0.8797152	0.835977	0.9006427	0.9301914	1.2433842	0.7481352	0.7840836	1.0419278	1.0734322	1.0431467	1.123614	1.0263213
				1.0398995	4.665098	2.8630996	3.9066653	1.0786923	0.9724069	0.9401826	1.3894747	0.9281926	0.9492854	0.8141191	0.7466667	1.1954583	1.2009614
				1.1384916	2.9850738	1.7897125	3.367003	0.9614662	1.0426806	0.8698621	1.3106813	0.8585084	0.6255935	0.9444807	0.7075344	0.7123765	0.9769859
				0.9437861	0.7143598	0.8142259	0.6898346	0.9173585	1.0213233	0.59038	1.7674837	1.2059116	0.6983711	0.8654006	0.5698858	1.1789088	1.1459078
				0.7172857	1.0038675	1.1405584	1.1268369	1.171653	1.0739478	0.5798544	0.5798544	0.5798544	0.5798544	0.5798544	0.5798544	0.5798544	0.5798544
				1.2113346	2.9793854	1.608432	2.871713	1.1531376	1.4207977	0.8521918	1.3038616	1.4111732	1.2598512	1.0010839	1.0086739	0.7293165	0.8733414
				0.8508215	2.4748769	1.7139141	1.3581831	1.2564949	1.2024245	1.4668504	1.7654766	1.71527	1.0910593	0.7573277	0.9701836	0.8730488	0.8730488
				2.3608058	2.5143518	1.4562907	1.7819164	1.054232	1.0834174	0.7309443	1.2092473	0.7027423	1.0295265	1.0356091	1.0584905	0.9674718	0.9185526
				1.3584251	2.091064	1.300579	1.5935695	1.2153777	1.6860768	1.7688313	0.5524889	0.4614466	1.193287	1.3112205	1.9899453	1.0433547	0.9860066
				1.038461	3.159928	1.8632291	2.7305069	1.0461	1.4049759	1.1648395	1.1186069	1.2124461	1.2197388	1.5133139	0.992198	0.8092328	0.8758459
				0.4750684	0.3044106	0.5206823	0.1569793	0.6789097	0.4831	0.4522781	0.3881274	0.3381833	0.1545165	0.2702588	0.5410396	1.8491436	0.894806

Proliferating cell nuclear antigen gene	0.8757837	1.8328227	1.408458	2.0838825	0.9742153	1.0774728	1.4538667	1.1128132	1.0369885	1.1363467	1.3657287	0.9707131	0.7581933	0.8950108
Integrin beta 1	0.8828884	1.3733207	1.1207848	1.3520906	1.1283333	1.3487253	0.868632	0.91538	0.9280598	0.9461837	0.8459505	0.8858171	0.981594	0.9450706
Caspase 6	1.1267935	1.1530595	1.0050522	1.1413513	1.0908027	1.1453709	0.8986123	0.7886009	0.8406389	1.0876599	0.958185	0.7816393	0.9848979	0.9745107
Phase-1 RCT-116	1.4981838	2.074215	2.0403783	0.988881	1.1043712	0.878782	0.3531345	0.2786272	0.6918442	0.9034101	0.8918682	0.4914708	0.66062	0.66062
Phase-1 RCT-109	0.7539058	1.5393132	1.2151245	1.5855896	1.3549582	1.5861252	1.1762372	0.874524	0.8593291	1.3883901	1.3994707	1.318573	1.218268	1.1664286
Phase-1 RCT-71	0.8665333	1.3359883	1.1005051	1.0353825	1.2753224	1.1003181	1.021799	0.8903383	1.0096934	1.0096934	1.17009	1.1079706	0.7751497	0.9178413
Elongation factor-1 alpha	1.0225891	1.1194668	0.993348	1.0118845	1.1551472	1.0120801	1.2281874	0.9384159	1.021773	1.3803845	1.5621709	2.4764445	1.4100875	1.7191188
Phase-1 RCT-169	0.8051678	0.9704499	1	1.299978	1.0704755	1.2276249	0.8280248	1.3279272	1.0032408	0.656775	1.1181076	0.678765	0.6488193	0.8776336
Pyruvate kinase, muscle	1.2632686	1.1527118	1.0516709	1.1587779	0.8204168	0.7310895	0.9904887	0.8123157	0.6220736	0.8363983	0.9284468	0.8636923	0.904745	0.936362
Nucleosome assembly protein	2.1655862	0.9017426	0.818171	0.7942088	1.80115609	1.6744641	1.2669942	1.1990772	1.106593	1.0415143	1.3950613	0.7823462	0.7260546	0.7260546
Phase-1 RCT-127	0.7421457	2.7517655	1.850964	2.4814494	0.7786243	0.852926	1.2374219	1.4223213	1.5873238	0.876962	1.4400619	1.0136966	0.8540568	0.9440331
Iron-responsive element-binding protein	0.9127822	0.5936948	0.8862427	0.5677659	0.8779098	0.8432872	1.554189	0.8255227	1.1671485	1.4835953	1.8668817	1.1488272	1.1804493	1.0927458
Phase-1 RCT-72	1.0529689	1.4784483	1.0809506	1.689314	0.8892552	1.0525385	0.972864	1.150724	0.9855813	0.8329158	0.9684984	0.7644585	0.6987487	0.936689
Phase-1 RCT-144	1.0897225	3.6527135	2.0671349	3.3134623	1.1678252	1.5323609	0.9030507	1.5098847	1.8019848	1.3303572	1.9731643	1.1188388	0.7681992	0.9255725
Phase-1 RCT-242	1.0680346	4.2778153	2.142768	4.0212636	1.4287058	2.512171	0.7075283	1.0646973	0.98813	0.86059	0.9826224	0.879656	0.6788809	0.8376394
17-beta hydroxysteroid dehydrogenase, type 2	2.1285467	0.4785214	1.1547089	0.5146813	0.5649787	4.3197937	0.6748216	1.171096	0.955455	0.9186965	0.8705337	1.2867705	0.7192826	0.6400901
Phase-1 RCT-70	0.2627655	1.1747006	1.0233732	1.2065824	0.839785	1.046701	1.2550893	1.1414571	0.9877786	1.2138782	1.108265	1.0010089	1.0178657	1.0016474
Ribosomal protein L13A	0.6666623	1.5996859	1.2773485	1.5645155	1.6114365	1.9697762	1.2283769	0.8927635	0.6810235	1.612297	1.3930826	1.2527714	1.2477404	1.3320664
Cytochrome P450 2E1	1.4708492	0.4431618	0.3540786	0.5515161	0.818828	1.6510942	1.0911818	0.6713246	0.8082452	0.7140248	1.0402614	0.9378149	1.2034614	0.9576892
AT-3	1.0109092	1.1667881	0.9615662	1.1649761	1.1071584	1.0340213	0.832381	1.5656103	1.1600322	0.712472	0.8217828	0.9108228	0.8084411	1.0236082
Phase-1 RCT-270	0.7090792	0.4011772	0.5650736	0.3368262	0.6282733	0.5002535	1.6370288	0.7148238	0.7708334	0.9427805	1.0993949	1.1445255	1.4826891	1.0451792
Phase-1 RCT-123	0.9504537	1.0104771	0.9495598	1.0563363	0.9031825	0.8483586	1.1020392	0.9956724	1.0889142	1.0251856	0.962006	1.0249429	0.7607854	0.9022651
Alpha-2-macroglobulin, sequence 2	0.7631831	0.8071213	0.7053223	0.7340056	0.7087691	0.8785034	1.4345533	0.8264394	0.8989087	1.3866827	1.6776382	1.0396745	1.1021883	0.8953791
Matrix metalloproteinase-1	0.8213148	1.2833747	1.1878209	1.368808	1.231405	1.1117179	0.7683936	0.6848716	0.8457176	0.9538271	0.8153479	1.0341309	1.3212502	0.9954585
Beta-tubulin, class I	1.1705807	3.208725	1.9164405	3.0128639	0.7863578	0.9067896	0.6537312	0.2807447	0.4109575	0.5966868	0.9401471	1.0975928	0.8943358	1.0475734
Phase-1 RCT-161	0.9504568	0.6693633	0.7874407	0.572149	0.5444511	0.6300923	0.7010142	0.3249824	0.2946154	0.8170066	0.9821009	0.7487954	0.7864958	0.7262845
14-3-3 zeta	1.0477242	2.6452231	1.9145318	1.9458206	1.2608935	1.4302226	0.5021094	0.6422179	0.601244	0.5890116	0.7600928	0.6912248	0.6859944	0.8145136
Stem cell factor	0.6011826	0.8286035	0.8574977	0.6282983	0.8738676	0.7211448	0.8375633	0.9502631	1.0364805	0.7821227	0.7991197	0.7163438	1.2561315	1.1956146
Macrophage inflammatory protein-2 alpha	1.0376683	5.8859153	2.080393	3.6116807	1.6221519	4.3107123	1.1607493	1.5312385	0.7688538	1.0086368	1.0558844	0.9880999	0.812092	0.9934964
Thymidylate synthase	1.4905071	1.0370532	0.9428874	0.9632804	1.3209971	1.3720802	0.99652	1.0836666	0.750396	0.7240039	0.865212	0.5495735	0.7858306	0.9957789
c-Jun	1.0450134	6.3308783	2.8741693	6.1863155	1.9385508	3.534283	0.9300802	0.763423	0.8786777	1.0692589	1.0713876	0.9150853	0.8925537	1.0495182
Superoxide dismutase Mn	0.9883891	1.8340144	1.3580865	1.6279742	1.3337784	1.2124912	1.1260207	1.0520145	1.0608006	1.3213862	1.4110487	1.4506973	1.1454228	1.0831802
Phase-1 RCT-73	1.1849888	0.9723752	0.9612783	0.9248407	0.8905695	0.8452389	1.0194948	0.836229	0.8481513	1.042784	1.0219548	1.3858722	0.9591825	0.8852518
Macrophage inflammatory protein-1 alpha	1.0913938	1.8791075	1.4821895	2.4320447	1.4520001	1.302864	0.8698251	1.0516834	0.9735724	0.8189716	0.9364313	0.8681048	0.6618428	0.8469229
Phase-1 RCT-214	1.2855912	0.6316849	1.1198448	0.6202854	0.605	0.6077121	1.2238961	0.8048398	0.9323912	0.8411842	0.9801988	0.8446674	0.9711207	1.2873286
NADH-cytochrome b5 reductase	0.9716144	0.5381223	0.731341	0.5669075	0.5325	0.4195853	1.2268099	0.6857025	0.7786142	0.901718	0.9125163	0.9692891	1.4715375	1.3073021
Interleukin-1 beta	0.8747738	1.1802584	1.1463283	1.3217931	1.2914845	1.15441	0.8603826	0.7720144	0.9188625	0.8532499	1.0709758	0.796042	1.3018434	1.0317203
NADP-dependent isocitrate dehydrogenase, cytosolic	1.1332413	0.4825503	0.8111378	0.4465239	0.8449965	0.8249955	1.5759628	0.7016332	1.1244615	1.2918222	1.0438294	1.1470474	1.1978151	1.1521425
Phase-1 RCT-289	1.0153891	0.6125925	0.6914029	0.5849629	0.8027923	0.7302274	1.4096866	0.8338488	1.0004985	1.1396871	1.143574	1.150601	1.3554294	1.1212798
Glutamine synthetase	1.084321	0.5731256	0.690157	0.9628206	1.1978416	1.007456	0.8980883	1.5645282	1.6637605	1.4361356	1.034441	1.5683843	1.5630064	1.189969
Phase-1 RCT-182	0.8810073	0.6898353	0.7460433	0.8463543	0.8612322	0.694202	1.4064935	0.981078	1.3015753	0.9955105	1.3586593	1.2771626	1.6049628	1.1905062
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.075741	1.7219193	1.4253161	1.3943104	1.1789488	1.0519481	1.2543423	1.3448393	1.3884952	1.5298707	1.369906	1.1755967	1	1.1235083
Extracellular-signal-regulated kinase 1	0.4831012	0.6117538	0.7562842	0.4202999	0.6801615	0.4993888	0.506282	0.6574135	0.5709472	0.2205146	0.3789895	0.5109311	1.3551108	0.916277
Emerin	1.2263917	1.0394256	1.013423	0.9776732	0.907431	0.8484811	1.1028464	0.7420289	0.8208376	1.064181	0.7562854	0.9816958	1.0572027	0.999565
Phase-1 RCT-78	1.0892912	0.8637328	1.0271559	0.980166	0.8944895	1.0629585	0.9187272	0.862438	0.7939779	0.8959986	1.0274034	1.0830078	0.9830078	0.999565
Phase-1 RCT-212	0.7180929	1.2608567	1.0585625	0.9283719	0.8472754	0.828162	0.9729087	1.0781435	0.9147837	0.931778	1.130138	0.9721732	0.7315075	0.8424636
Phase-1 RCT-168	1.1207591	0.52183	0.7787344	0.6053192	1.1333709	0.9855487	0.9896477	1.0507185	1.3650427	1.1447351	0.94151	1.172968	1.3776229	1.0826093
Lysyl hydroxylase	1.1213822	0.6406153	0.8310946	0.8232926	1.113207	0.9885563	1.0804771	1.2514188	1.4230347	1.5086398	1.6074192	1.5533127	1.2078619	1.2078619
Phase-1 RCT-55	0.7388089	1.0522739	0.9292412	1.0610853	1.0433824	1.0625855	0.8865788	1.0370266	1.007302	0.9881374	1.0385654	0.9657487	0.882597	0.8515997

MHC class I antigen RT1.A1(f) alpha-chain	1.1044897	2.5039837	2.375702	2.9335893	0.8816381	1.066051	0.2694188	0.4321977	0.384503	0.3659965	0.4277928	0.5428683	0.7571532	0.9681833
Phase-1 RCT-40	0.9412754	0.5176179	0.6643274	0.4552652	0.7516438	0.8872109	1.286754	1.0423954	1.281455	1.3408848	1.1141518	1.5901107	1.1488858	0.9998204
Cyclin G	0.9811706	1.1808406	5.425879	8.10581	2.8266072	4.884555	0.6756685	1.2878695	1.2771572	1.2481598	0.8390444	0.8426447	0.7168882	0.9429215
Peroxisome proliferator activated receptor gamma	1.7575788	0.9871824	1.1446279	1.158231	1.5000836	1.1864322	0.8920239	0.7371407	0.7330893	0.7332332	0.85286	1.0430323	1.0643578	1.2538161
Phase-1 RCT-280	1.330703	0.9542426	1.0068421	0.9218929	0.8838979	0.7440836	1.5840575	1.0357163	1.2248689	1.470581	1.0611261	1.8882008	1.3989136	1.2756737
D-dopachrome tautomerase	1.033198	0.7300786	0.688565	0.7135617	0.9253599	0.9028862	1.1009005	0.6984233	0.9131733	0.9162919	1.1785444	1.7122018	1.2438078	1.0254271
Phase-1 RCT-287	1.1215166	0.6437347	0.7445805	0.6159639	0.7987928	0.7088116	1.5868874	0.6610177	1.2148949	1.7886189	1.478234	1.6762542	0.8984547	0.9380334
Phase-1 RCT-119	0.8191561	0.4284502	0.4619425	0.3237254	0.6872376	0.6878041	2.1080105	0.9841449	0.8091317	1.293218	1.4355767	1.3708809	1.563357	1.2553256
Thioredoxin-1 (Trx1)	0.8464779	0.9804469	0.8567748	0.8671225	1.0541887	1.0880774	1.5495167	1.1148903	1.2238629	1.6762501	1.6292542	1.8406374	0.9075463	0.8620425
Phase-1 RCT-225	0.6650739	1.9802423	1.4397321	1.0639042	0.4306505	0.4658932	0.5625975	0.9886569	0.6541455	0.5924696	0.7603481	0.8195771	0.9421056	0.8247786
Protein kinase C alpha	0.9110502	1.0322503	0.9965065	1.0526676	0.9643388	0.7678616	1.95717	1.322306	1.3788138	1.4952191	1.3766613	1.2209836	1.4326771	1.2412567
Phase-1 RCT-87	0.9212559	0.8553177	0.8410067	0.8392639	0.8716289	0.8785284	1.3980403	1.0903051	1.1809826	1.2704817	1.4782107	1.1348828	0.8629355	0.9160287
Phase-1 RCT-59	1	6.071453	3.1821194	7.903795	3.650263	4.440098	1.1509476	1.1509278	1.1361003	1.2230527	0.9928949	1.1881704	1.0313885	0.9896884
C4b-binding protein	1.0131764	0.5747827	0.7250066	0.8409396	0.9642112	1.0091234	1.5504801	1.2537663	1.3449256	1.3280367	1.4374032	1.7904607	1.071612	1.1564987
Phase-1 RCT-204	0.8346456	1.5292451	1.2592149	1.663888	1.0078044	1.0494508	1.3006037	0.9281278	1.001132	1.1640625	1.0434731	1.090005	0.8486773	0.8733006
Camitine palmitoyl-CoA transferase	1.4006947	2.1493251	1.9610192	2.423411	1.1292717	1.4081326	0.8420576	0.6469282	0.9145371	0.9286037	0.8107116	0.8052735	0.7683026	0.8239064
8-oxoguanine DNA glycosylase	0.8851944	1.0131531	1.0616709	1.1232785	1.1202703	0.9214398	0.7211685	1.1213989	1.3804375	0.9825917	0.9889684	0.8375036	0.8907017	0.9957311
H-rv107	1.3396013	1.006677	0.8914694	0.9739823	0.8167735	0.8407175	1.148565	0.6165416	1.0352539	0.7763128	1.1132673	0.8779498	0.8074973	0.8650863
Preproalbumin	2.3950615	0.9891126	1.4207505	0.9394212	0.9566094	0.8977732	0.4137893	0.3790047	0.2406324	0.5308922	0.6073061	0.9899747	1.0581433	0.8923597
Phase-1 RCT-177	1.1165385	0.7887878	0.9772732	0.7919344	1.0404531	0.8729369	1.1141635	0.7716496	0.9684581	1.2316125	1.0735385	1.6153178	0.9743791	0.8646788
Phase-1 RCT-110	1.0705726	0.795857	0.9731349	0.7670572	1.2551588	1.1012684	1.0825001	0.9475123	0.8242272	0.810636	0.4645274	0.8380237	0.7752954	0.8421447
Phase-1 RCT-227	1.1624813	1.3750663	1.0834199	1.2806512	0.9625	0.9621885	1.0041858	1.1775752	0.9499241	0.8545064	1.1444443	1.0307418	0.9791156	1.0781689
Neuropilin Y	1.8548694	0.7622113	0.7890912	0.799126	1.1639608	1.0244124	2.4799984	1.1709795	1.6129565	0.7079576	1.6428915	1.6770371	1.1141748	1.3397336
Phase-1 RCT-277	1.0343887	1.0684927	1.0318931	1.0566839	0.9453397	0.9619847	0.9547108	1.307052	0.8955523	0.8158007	0.9186252	0.8416923	0.8592279	0.9958171
Phase-1 RCT-229	1.2571117	0.7582375	0.9879892	0.6540166	1.5444446	2.1935241	0.9148544	0.7270933	0.8013015	0.7514502	0.855899	0.7197377	1.1397507	0.9509527
Phase-1 RCT-34	0.7542752	1.1687438	1.0452665	1.0650359	0.9354804	0.8979882	0.8273665	0.7441332	0.7988809	0.6021789	0.7848785	0.6368336	0.8087287	0.9470288
Choline kinase	1.6896739	1.1101228	1.022512	1.0781702	0.8851718	0.8870937	0.6845648	1.161555	0.9287823	0.7658473	0.8302552	0.6394958	0.8893375	0.8632728
Phase-1 RCT-20	0.730984	1.4070712	1.4083581	1.416328	0.9052239	1.4805955	0.8522354	0.9325866	0.9898763	0.863609	1.0583073	1.0489224	1.0157247	1.0513474
Phase-1 RCT-248														
(1) Gene expression data for 6 hour (timepoint) are presented as mean ratio of treatment/control for all 6 hour predictive genes (Table 20).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 20 and as included in Table 32)														

Table 34. Expression Data for 6 Hour Timepoint (1)																			
Compound-Dose (2)	EST 0.4	EST 0.4	EST 0.4	ETH 2500	ETH 2500	ETH 2500	ETH 2500	GAN 50	GAN 50	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200
Animal Number (3)	1431	1432	1433	131	132	133	2441	2442	2443	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460
Liver Toxicity Necrosis Classification (4)	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name (5)	Gad6153	0.7583081	0.7698525	0.9120985	1.1874509	1.0804772	1.2623208	0.8603386	0.9014662	0.843106	1.1492279	0.9373988	0.984856	1.0703622	1.1455681				
Interferon related developmental regulator (IFRD1) (PC4)	1.001286	1.0996817	1.1304364	1.006948	1.095503	1.2279831	1.3860478	1.3728855	1.4572014	1.7453324	1.6384251	1.6405149	0.9872436	0.9872436	1.1390474				
Insulin-like growth factor binding protein 1	0.840699	0.8591831	0.8763377	0.9775443	1.0918127	1.0781168	0.933121	0.9344038	0.9495077	0.9838376	0.7812493	1.1784389	0.9860014	0.9860014	0.9860014				
NIPK	1.0365711	0.8608801	1.5081958	0.878448	0.8528927	0.8655914	0.9286351	0.9821955	1.0208721	1.1879667	1.2374921	0.9173954	1.822687	1.1452451					
Phase-1 RCT-50	0.9946584	0.7578783	1.006434	0.9208556	1.0308541	0.9787817	0.9809315	1.0078533	1.0386165	1.055413	1.1409038	1.1083313	0.9591495	1.1096885					
Sarcoplasmic reticulum calcium ATPase	0.7670839	0.7466373	0.6471496	1.2012886	0.9791218	1.0141339	1.0153555	1.0494449	1.0434613	1.0373479	1.0559881	1.1551928	0.9854285	1.1359861					
Phase-1 RCT-18	0.7865374	0.9722935	1.1977534	1.3622067	1.0700077	1.1980573	0.9412523	0.8605072	0.8976755	0.9459211	1.0267525	1.1408034	0.934634	1.2284557					
3-beta-hydroxysteroid dehydrogenase (HSD3B1)	0.9604938	0.7317975	0.6295563	1.1069285	1.0044167	1.0210335	0.9323568	0.9076539	0.9003488	1.1478383	1.1717297	1.1462344	0.9618257	0.9608116					
Acetyl-CoA carboxylase	0.9465537	1.2056384	0.9184463	0.9486423	1.001056	0.9098421	0.9383068	0.8612872	0.9052038	0.9168768	0.960213	0.9744401	0.8176953	0.9269811					
Cathepsin L, sequence 2	1.0091324	1.4388359	1.1369851	0.9241644	1.1408347	1.1028679	1.1618222	1.1881638	1.1985086	1.3905112	1.6897217	1.6290381	1.3454994	0.796142					
Glucokinase	1.748795	1.371239	1.3835235	0.9712981	0.9670098	1.0549184	0.6991381	0.7000591	0.7000591	0.8424161	1.1421276	1.1941953	0.8115968	0.7652976					
Gadd45	0.734883	0.757283	0.7942495	1.8339617	1.0281488	1.5438823	0.9769284	1.0087089	0.9582183	1.0244161	1.1421276	1.1941953	0.8115968	0.7652976					
Phase-1 RCT-18	0.8924657	0.9490553	0.8767011	0.8633316	1.0495888	0.9155588	0.8922961	0.8976408	0.878736	0.8876132	0.879046	0.9348332	0.8830884	0.9634497					
3-beta-hydroxysteroid dehydrogenase (HSD3B1)	1.2762828	1.3139546	0.9772087	0.7692739	0.9491699	0.6263946	1.3121604	1.475288	1.1508928	1.2062868	1.1929561	1.0886682	1.311926	1.130972					
Phase-1 RCT-221	1.0356052	1.0647916	1.2703807	0.8347601	1.2746607	0.8924251	0.7823151	0.8195869	0.8349316	0.8204901	0.9022673	1.05991	0.8342958	0.6786928					
Heme oxygenase	0.7130534	1.1116625	0.9067209	1.2784023	0.9541441	0.9379441	1.2820089	1.10049	0.9722828	1.555585	1.4655039	2.0376222	1.0069239	1.0362954					
Cylin dependent kinase 4	0.9255791	0.9216291	0.8444971	1.0397849	0.958056	1.1759977	1.0276918	1.1668346	1.0217165	1.177608	1.340468	1.05742	1.1086528	1.0910149					
Phase-1 RCT-75	1.020117	0.8959927	0.8070684	1.0917275	1.2415928	1.0507032	1.0551605	1.0243926	0.9869852	1.1760786	1.3787688	1.2327306	0.9895637	0.9315457					
Phase-1 RCT-65	0.7586918	0.6571576	0.7016456	1.1419393	1.1070446	0.8952279	0.9098555	0.9084083	0.9454216	0.8818849	0.8618919	1.0566046	0.8392362	0.8631613					
Cytochrome P450 1A1	0.8273394	1.1778455	0.7946378	1.285492	0.8539681	1.286459	1.2074642	1.1309646	1.0827435	1.4592625	2.8689377	1.172641	0.9047245	1.1676958					
Peroxisomal multifunctional enzyme type II	1.2086265	1.1981788	1.01007	0.9280307	1.118123	0.9031642	1.3528346	1.3456603	1.4140025	1.2184929	1.4941648	1.2578622	0.9002509	0.8465017					
DNA topoisomerase I	1.8595204	1.4872819	1.8480041	0.7865569	1.1197311	0.9137864	1.1671149	1.1535813	1.1415415	1.4158652	1.3269649	1.2347972	1.2059957	1.2200465					
FGF-inducible kinase (p1125FAK)	1.0817284	1.1731708	1.0618595	0.8702077	0.8051527	1.0293117	1.2581793	1.1723814	1.0313327	1.4241583	1.1322945	1.2997657	0.9846581	1.2716358					
NF-κB anti-proliferative putative secreted protein (PC3)	0.9753243	0.9171475	1.3298756	0.8220695	0.8147953	0.8885866	1.1781976	1.10827	1.0031441	1.3210475	1.1039287	1.1873313	0.9874322						
Phase-1 RCT-82	0.8659771	1.4905599	0.8654087	1.1209044	1.034864	1.0342131	0.9278623	0.8801953	0.9642041	0.9125179	0.894482	0.8990084	0.9064721	1.1050645					
Sensescence marker protein-30	1.7852149	1.2896401	2.0485046	0.5668374	0.7300475	0.7186121	1.0314671	1.0598562	1.0853969	0.9288421	1.0624695	1.1177529	1.303622	0.9136775					
Melanoma-associated antigen ME491	1.1410657	1.138594	1.071653	1.0264399	0.9282906	1.0704973	0.9858425	1.0266176	0.9037991	1.1014501	1.0640708	1.12321495	1.1226124	1.0491755					
Activating transcription factor 3	1.1228995	0.9317565	0.7945917	1.1823715	1.1963793	1.1140978	0.9138985	0.8528027	0.8272888	0.8103424	0.7273538	0.7566243	0.9305249	1.0590037					
Tryptophan hydroxylase	0.8210166	0.8562038	0.8573077	1.0787637	0.9945273	1.0336542	1.0870714	0.9428178	0.9539951	0.9753123	0.9837891	0.8697577	1.2032127	0.9357161					
Zinc finger protein	1.0538801	1.0335635	0.7848162	0.9077632	1.0340881	0.8755602	1.1337997	1.0492547	1.0494119	0.8034117	1.1754973	0.9193807	0.8431798	0.8993816					
c-myc	0.8147162	0.8086494	0.6411319	1.3958893	0.8888675	1.3064717	1.0679102	1.0278081	0.9171689	1.148303	1.0157576	0.9838143	1.0466344	1.3003286					
Cholesterol 7-alpha-hydroxylase (P450 VII)	1.3262137	1.4430654	1.253966	1.0400044	0.7799749	1.1664665	0.9816918	0.9763938	0.9578473	1.1289962	0.8111164	1.2789932	1.1876952	1.8491255					
Ferritin H-chain	1.2793036	1.860031	1.4408659	0.6749139	0.913588	0.7940972	1.0266696	1.8119823	1.2430978	1.0492101	1.2814943	0.9337864	1.178692	0.6758007					
Phase-1 RCT-197	0.82326824	1.0402675	0.89183	1.0492218	1.2352865	1.0782217	1.0739248	1.294012	1.4902544	1.1314183	1.3803396	0.9132541	1.0375327						
Phase-1 RCT-179	1.0050968	1.0486878	1.107739	0.7940169	0.960488	0.9681287	1.0903771	1.152815	1.1821909	1.1555505	1.1549723	1.8047799	1.2418946	1.0336861					
Phase-1 RCT-15	0.7134185	0.6525266	0.6636647	1.1304988	1.1490401	0.6889578	1.1593669	1.1224626	1.1837616	1.208211	1.7587789	1.3677597	1.1249108	0.9284031					
Argininosuccinate lyase	1.1607779	1.0989169	0.8086936	0.9873684	0.9788708	0.800393	1.4169972	1.44707	1.3660539	1.2777408	1.6356899	1.5070518	1.5717558	0.891384					
Phase-1 RCT-49	0.8850216	1.0895451	1.0527546	0.9318548	1.0897816	1.09795	0.9540139	0.89801	0.9668466	1.0112478	1.2325155	1.474705	0.3804765	1.2930065					
Carbonic anhydrase III	1.2231811	0.5955451	1.0982778	0.9376591	0.3665724	0.6880975	0.6652724	0.3682204	0.367227	0.3682204	0.4471607	0.3604785	0.6714267	0.564748					

Proliferating cell nuclear antigen gene	0.8150645	0.9085831	0.9223794	1.2837853	0.8267971	1.2517221	0.8121697	0.8484456	0.8530536	0.946319	0.7571231	0.8173716	1.1574932	1.3910277
Integrin beta1	0.9525597	0.8549941	0.9678363	1.300398	0.94458	1.2997756	1.0244067	1.0878925	1.0542861	1.408833	1.0538571	1.20195	1.44134	1.1583565
Caspase 6	0.8927584	0.8932731	0.9826469	1.2284529	1.0596352	1.380923	1.0215634	1.03705	0.8816207	1.290275	1.0224676	0.9511649	1.0793415	1.0975618
Phase-1 RCT-116	0.5438997	0.4776347	0.4814604	1.1333174	1.1333174	0.8168195	1.1970849	1.064776	1.2469491	1.5756956	1.3616754	1.4918815	1.171592	0.7865976
Phase-1 RCT-109	1.435941	1.3927185	1.6048622	0.8536423	0.9940829	0.8617926	1.0487349	1.0461495	1.1004812	1.4497476	1.4730349	1.442	1.2715892	0.8716604
Phase-1 RCT-71	0.8122494	1.0540559	0.8327419	0.9916235	0.9306421	0.840392	1.0546343	1.000265	1.17492	1.1063224	1.2201684	1.4817358	0.9674234	1.0929259
Elongation factor-1 alpha	1.3686469	1.2923751	1.1689371	0.6774882	1.1986778	1.0787144	1.0394231	1.0613164	0.9608049	1.0792878	0.9015466	1.328736	1.1254094	0.8172427
Phase-1 RCT-169	0.5146973	0.7501223	0.9089439	1.2857778	1.0787144	1.0394231	1.0613164	1.0498844	0.9608049	1.0792878	0.9015466	1.328736	1.1254094	0.8172427
Pyruvate kinase, muscle	0.9326756	1.0181215	0.8582439	0.9331533	1.2481794	1.10982	0.9593946	0.9791515	0.9791766	1.0995658	1.0164686	1.0807217	1.1199754	0.9183435
Nucleosome assembly protein -	1.0786111	0.8911851	0.9528492	0.6964823	0.7628748	0.8478684	0.8093572	0.852124	1.3688782	0.6739044	0.7455932	1.0164686	0.86478461	1.1368335
Phase-1 RCT-127	1.046854	0.9635861	1.08892	0.91751	0.8532536	0.9509178	1.126501	1.0791448	1.0488182	1.1240592	1.5450443	1.8532118	1.0817263	1.1595863
Iron-responsive element-binding protein	1.1374741	1.10109282	1.1224977	1.3558585	1.201415	1.4941527	0.9774711	0.9800006	1.0596461	0.8899485	0.8817892	1.1665903	0.8299567	1.0890157
Phase-1 RCT-72	0.5026922	0.5953944	1.7281503	1.0387912	1.1626867	0.908513	0.9037745	0.9705676	0.9585745	1.2433691	1.1637335	1.4817443	1.0024972	1.0251063
Phase-1 RCT-144	1.0001702	1.1296295	0.9777842	1.0644376	1.0153602	0.941297	0.9349667	0.9050837	0.9585745	1.2433691	1.1637335	1.4817443	1.0024972	1.0251063
Phase-1 RCT-242	0.8252167	1.3312824	0.7098084	1.3371048	0.9304188	1.1935967	0.9884542	0.8678098	0.9119038	1.26231	1.2087405	1.2238438	0.8708353	1.1412474
17-beta hydroxysteroid dehydrogenase, type 2	1.0050323	0.665345	0.8988867	0.8477258	0.758987	0.8415563	0.7975014	0.7980703	1.5703495	0.6583799	0.4892888	0.5271972	0.5465289	1.1244538
Phase-1 RCT-70	0.9158249	1.0304717	0.8884482	1.1311028	1.2465945	0.9209083	0.8596746	0.8954208	0.8957057	0.8011496	0.8943167	0.9353152	0.9007324	0.8082652
Ribosomal protein L13A	1.4874643	1.2703654	1.6974485	1.725181	1.0808575	0.7849693	0.9469745	1.0558317	0.9789271	1.3410084	1.3350173	1.3786122	1.4205028	0.977382
Cytochrome P450 2E1	0.9481482	0.9704424	1.0339531	0.9555704	0.800234	1.1395278	1.0104347	1.0767244	0.7084472	0.771584	0.9480705	0.7624569	1.0371862	0.9042823
AT-3	0.8948907	0.9058294	0.8574736	0.8748853	0.980812	1.1611369	1.1031704	1.0898496	1.0186012	1.0275601	0.9543999	1.0331187	0.9963478	1.0832655
Phase-1 RCT-270	1.2079656	1.2068535	1.3416092	0.8044092	0.9920289	1.0571308	0.8544738	0.8962595	0.9053668	0.7447391	0.8476213	0.5758236	0.8027597	0.861032
Phase-1 RCT-123	0.9110397	0.9114224	0.8430084	1.0634174	0.9727401	1.0716985	1.0048393	0.9779226	1.1093734	0.911158	0.9610543	0.9332809	1.009741	1.158317
Alpha-2-macroglobulin, sequence 2	0.870599	1.1371822	0.9455547	0.7821562	0.7834363	0.6754215	1.3074244	1.3895967	1.030676	1.4520154	1.4572407	1.5766407	1.1387395	1.2709306
Matrix metalloproteinase-1	1.2021214	1.1424415	1.3794046	0.7566287	0.9719384	0.8621512	1.0280927	1.1598609	1.0747011	1.3057508	1.1482981	0.8304421	1.1764649	0.6990032
Beta-tubulin, class I	1.1177284	0.9267524	0.8522871	0.8049175	0.9024373	0.7973308	0.795205	0.8545832	1.1163184	1.3057635	1.1323972	1.4558687	1.6597817	0.6939847
Phase-1 RCT-161	0.7817141	2.4560826	0.7034597	1.0535109	0.583721	0.7825052	0.7647272	0.8119298	0.727452	0.5860325	0.8434246	0.5747805	0.7021921	0.8276814
14-3-3 zeta	0.7807224	0.6778676	0.5988513	1.0457047	1.04135	1.0005802	1.0594461	1.0619445	1	1.1699277	1.2689055	1.3241378	1.0677041	0.7769265
Stem cell factor	0.861441	0.8286937	1.0669761	0.8631797	0.8771512	0.839173	1.0048153	1.0174469	1.0020477	0.9965434	0.9501237	0.9443725	0.9825909	1.0026604
Macrophage inflammatory protein-2 alpha	0.6538919	0.8933989	0.6908793	1.8744742	1.1779593	1.6661495	1.1650777	1.1493648	0.9138092	1.5790453	1.6157172	1.899052	1.4845176	1.152255
Thymidylate synthase	0.8088392	0.7231497	0.6710587	1.3389986	0.8039407	1.3895127	0.9861366	0.9185802	0.9697653	0.9248511	1.0628692	0.9206955	1.210347	1.5095093
C-Jun	0.6597843	0.7935766	0.6898984	1.594034	0.9953411	1.2989212	0.9201561	0.9708573	0.8529849	1.0392345	0.931381	0.9622765	1.1030983	1.0034012
Superoxide dismutase Mn	1.088066	1.1309911	0.9618796	1.1272775	0.921368	1.1746732	0.9673803	1.002761	1.0239928	0.9810516	0.8741348	1.2753716	1.5496131	1.1650572
Phase-1 RCT-73	1.0457087	1.0116353	1.0344901	0.8820209	0.9588637	0.8239133	1.2085508	1.1903197	1.1701039	1.0579369	1.1223853	1.1442199	1.0912493	1.0165731
Macrophage inflammatory protein-1 alpha	0.4831599	0.6374102	0.4924438	1.232188	0.9600214	1.2350811	1.0909677	1.0115021	1.0619075	1.0567342	1.0160909	1.0054972	1.1593976	1.3769805
Phase-1 RCT-214	1.156774	0.9208229	1.0580978	0.8612923	1.0531908	0.8455996	1.0080605	1.0194654	0.9559037	0.8841123	0.7885088	0.901497	1.1836127	0.845372
NADH-cytochrome b5 reductase	1.3602033	1.0804011	1.4745059	1.0822381	1.1078827	1.015317	0.876952	0.8935689	1.068101	0.7756349	0.7627271	0.6103824	0.8503538	0.7120092
Interleukin-1 beta	1.1057063	1.1057261	1.2346438	0.9397197	1.0233185	1.0568788	1.0088378	1.0878898	1.0528835	1.0225699	1.0726529	1.059774	1.1678648	0.7707684
NADP-dependent isocitrate dehydrogenase, cytosolic	1.2737777	1.1491959	1.3238802	0.787567	0.8268277	0.8448204	1.0262548	1.0169761	1.9351695	0.7778244	0.6837882	0.7140889	1.1624864	0.821252
Phase-1 RCT-289	1.2001828	1.1137056	1.3812559	0.8661381	0.7671452	0.7892287	0.9443383	0.9935023	0.8607413	0.7916843	0.7586339	0.7036669	1.0019181	0.9418885
Glutamine synthetase	1.3755157	1.1957835	1.3032209	0.8167889	1.0235181	1.0345902	1.1036026	1.1030624	0.8870734	1.0882293	1.2687559	1.3409914	0.9251174	0.8540885
Phase-1 RCT-182	1.3387742	1.1643863	1.216596	0.7467043	1.1178029	0.8601782	0.9104491	0.9812712	0.9193443	0.8096126	0.7726845	0.6896824	0.7186713	0.775637
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.1700889	1.3017168	1.4262296	0.7525781	0.9689129	0.9847508	1.244106	1.0921634	1.145659	1.2883147	1.9207493	1.965763	1.0374839	0.9973732
Extracellular-signal-regulated kinase 1	0.8741012	0.5409387	0.7917188	0.8020002	0.7161292	0.5582217	0.9275815	0.9889914	0.8544432	0.8785737	0.9012746	0.84091	0.7368435	0.6449138
Emerin	1.1077341	0.8291246	0.8847648	0.8820133	1.0722515	0.9613263	0.9293453	1.0037388	0.748053	1.1839305	1.0158272	1.0136006	1.0416571	0.894589
Phase-1 RCT-78	0.9842194	0.9563347	0.9348434	0.8899428	1.0126139	0.9263166	0.9971605	1.0668238	1.0020108	0.9225177	0.8565171	0.8665865	0.8127312	0.8994589
Phase-1 RCT-212	0.5962918	0.854425	1.0239396	0.8789683	0.7387772	0.8517733	1.0374804	0.9653602	0.9621484	1.0996416	1.0374302	1.1488208	1.0301659	0.9931938
Phase-1 RCT-168	1.2553726	1.1274389	1.4154276	0.7620825	1.2491962	1.0798645	0.8647597	0.8774785	0.846287	0.9023772	0.5943256	0.657544	0.9260131	0.8308328
Lysyl hydroxylase	1.2146837	1.3479693	1.3047473	0.8151518	1.0319768	1.0298262	1.0653174	1.0253655	0.8819727	1.2858815	0.9512619	1.086577	0.9095359	0.9471902
Phase-1 RCT-55	0.879663	0.6863385	1.0278572	0.9126117	0.8802429	0.7812659	0.7255867	0.7535167	0.80416	1.2821794	0.7700851	1.1788757	1.1788757	0.959801

Table 34

MHC class I antigen RT1A1(0) alpha-chain	0.6395994	0.7121908	0.6002991	1.6405819	1.6095062	0.882232	0.9585427	0.9129567	0.9804375	1.1343632	0.9999999	1.0471803	1.2995924	0.8518928
Phase-1 RCT-40	1.0830338	1.0027827	1.041308	0.8026694	0.9889929	0.8268415	1.0838779	1.133808	1.1822858	1.042037	1.0687123	0.9018268	1.0200598	0.8751528
Cyclin G	0.7155522	0.6950899	0.5960293	1.4022173	1.0101626	1.2929996	0.9957031	1.0076786	1.12747	1.2449757	1.5388645	1.7348867	1.2107111	1.1498631
Peroxisome proliferator activated receptor gamma	0.8643854	0.7232987	0.7368686	1.2497065	0.8580204	1.2166704	0.9143531	0.8973623	0.9328214	0.855311	0.7240531	0.7215856	0.9514801	1.1842891
Phase-1 RCT-280	1.3155366	1.2898817	1.0758455	0.8511196	1.0523498	0.8232631	1.4219852	1.3210025	1.157926	1.0182133	1.1396981	1.1539787	1.0942652	0.9970065
D-dopachrome tautomerase	1.0051653	0.9620568	1.2246931	0.6749989	0.7874721	0.582478	1.0955334	1.1717098	1.1267455	0.8710994	0.9498455	0.8754223	1.0387434	0.8916322
Phase-1 RCT-287	1.0070418	0.9916791	0.9809035	0.9129724	0.9330888	0.9282041	1.1749226	1.1107905	1.0890795	1.0862077	1.1337279	1.1347337	0.9354578	0.8113872
Phase-1 RCT-119	1.2167274	1.3618536	1.2856428	0.9509191	1.1892052	0.8654614	1.0582108	1.2961128	0.9059465	0.714914	0.9636937	0.985486	0.9205625	0.9346064
Thioredoxin-1 (Trx1)	0.8662677	0.9274285	1.2117405	0.8555372	0.8410054	0.9188303	1.1532905	1.0181463	1.3148885	1.1915324	1.3072066	1.3707068	1.3778244	1.1784895
Phase-1 RCT-225	0.7344037	0.9363172	1.0031679	0.7578877	0.6707206	0.7501526	0.9744781	0.9636655	0.8995242	0.9913808	0.8092046	0.8623826	1.2118	0.8340029
Protein kinase C alpha	1.2192311	1.3185242	1.3396301	1.0326285	0.9227675	1.1990436	0.9184683	0.9030824	0.8930288	1.0734869	0.9120306	0.906357	1.0593499	0.8852184
Phase-1 RCT-87	0.9240755	1.9859939	0.9971004	1.056428	0.8913998	1.0139613	0.9717036	0.9402058	1.1282787	1.0383285	0.89797	0.9964948	0.9542386	1.08826
Phase-1 RCT-59	1.1328888	1.1499255	0.8764969	0.9291191	1.1524923	0.8575315	1.0118767	1.4672484	1.1691604	1.3317046	2.1333423	1.8200132	1.0165876	1.0267791
C4b-binding protein	1.202521	1.1237297	1.1048677	0.7481521	0.9953318	0.8215811	1.3808086	1.1159635	1.2148981	0.9930807	1.2374928	1.2162837	0.9425561	1.0282543
Phase-1 RCT-204	1.0709085	0.9666277	0.9695225	1.0442817	0.9741399	0.972427	1.0932584	0.8503996	0.8530975	1.0635327	1.0339853	1.1649772	0.8821307	1.0210859
Camitine palmitoyl-CoA transferase	0.7734776	0.6836717	0.5770065	1.2980025	0.8861904	1.1925623	0.8941209	0.8958565	0.8519062	0.9961863	0.9527473	0.9175338	1.1316018	1.1515138
8-oxoguanine DNA glycosylase	0.8031693	0.8431655	0.8255994	1.1797314	1.0118593	1.1509423	0.8836221	1.0603663	0.9478003	1.0263116	1.0076557	0.923641	1.1491742	1.2778827
H-rev107	0.8491399	0.833738	0.7324302	1.1104679	0.9699454	1.1077619	1.0424954	1.5025583	1.4692381	0.8719291	1.4748536	1.0783895	1.2096382	0.8665234
Preproalbumin	0.9256532	0.658998	0.5969732	1.0323056	1.1199471	0.605578	1.4249024	1.5025583	1.2690438	0.9920601	1.1884478	1.2811844	1.1455138	1.0185932
Phase-1 RCT-177	1.1035552	1	1.1046382	0.8708686	0.9178326	0.8067791	1.3251534	1.3011819	1.2690438	0.8891842	0.8450171	0.829705	0.9248722	0.8903044
Phase-1 RCT-110	0.8425152	0.8108224	0.768342	1.0986513	0.9109864	1.0533818	0.8745589	0.9433305	0.8891842	0.8450171	0.829705	0.9248722	0.8903044	1.0983253
Phase-1 RCT-227	1.0170791	1.0507699	0.9782375	0.8431815	1.0271181	0.9188049	1.0967632	1.2043598	1.1536828	0.8755224	0.9408242	1.0213375	0.8028659	0.8853698
Neuropeptide Y	0.9969136	0.9063368	0.9143534	0.933259	1.0613875	0.8916257	0.9467704	1.0134827	0.9492587	0.9556651	0.984656	1.004993	0.9280958	1.0240383
Phase-1 RCT-277	1.4484167	1.9124876	1.5949967	0.8180931	1.2988164	1.0839533	1.0817982	1.135705	0.9490067	1.0512284	1.1536216	0.9399878	1.5588208	1.1858082
Phase-1 RCT-229	0.7888463	0.8319213	0.8140638	0.9917877	1.00168	0.9455593	0.8976886	0.9113848	0.8639784	0.8428505	0.9397842	0.9842638	0.780215	1.1164922
Phase-1 RCT-34	0.8389707	0.6816721	0.9782218	1.1307684	1.2562938	0.9021536	0.8324536	1.0355276	1.0917329	0.7194856	0.8659429	1.0602891	0.9373187	1.3305684
Choline kinase	0.6380875	0.6894325	0.7481103	1.4133804	1.113885	1.2417948	0.9699959	0.984596	0.9674714	0.9370737	1.2603903	1.1518753	0.8523327	1.2000638
Phase-1 RCT-20	0.7345678	0.6600036	0.6959771	1.1482551	1.1761527	0.8166759	0.9655176	0.9753729	1.0549905	1.1248436	1.1060641	1.1518753	0.8523327	1.2000638
Phase-1 RCT-248	1.1106832	1.3520929	1.1893849	0.9783784	0.9677097	0.8774297	0.8622807	0.9179393	0.885334	1.1071438	0.9714993	0.9888589	1.099086	0.9118907

(1) Gene expression data for 6 hour
timepoint are presented as mean ratio of
treatment/control for all 6 hour predictive
genes (Table 20).

(2) Compound and dose abbreviations as
in Table 1.

(3) Individual animal number

(4) Liver necrosis classification for
compound-dose group at 72 h: yes,
necrosis observed; no, no necrosis
observed

(5) Predictive gene (as in Table 20 and as
included in Table 32)

Table 34

Table 34. Expression Data for 6 Hour Timepoint (1)															
Gene Name (5)	GEN 38	GEN 150	GEN 150	GEN 150	HYD 250	HYD 250	HYD 250	HYD 250	HYD 1000	HYD 1000	ISON 50	ISON 50	ISON 50	ISON 200	ISON 200
Compound-Dose (2)	223	231	232	233	1221	1222	1223	1231	1233	1243	1941	1942	1943	1951	1952
Animal Number (3)	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Liver Toxicity Necrosis Classification (4)	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name (5)	1.116924	1.0480762	1.1497957	0.9955874	1.0137774	1.0955021	1.2753471	1.8127629	1.3033437	1.2639816	1.0275779	1.1779433	1.0215728	1.0858066	1.0858066
Interferon related developmental regulator	0.9935949	1.0385746	0.835793	0.8920229	0.8620494	0.7604014	0.7968494	0.9778913	0.9150389	1.0805734	1.0728949	1.0235034	1.2561146	1.0732973	1.0732973
IDR1 (PC4)	0.8951258	1.1923246	0.9967165	1.0135331	1.1734393	1.1754112	1.1274909	1.4366284	1.2894638	1.1046585	0.9699711	0.9389923	1	1.00917	1.00917
Insulin-like growth factor binding protein 1	1.4183425	1.0239638	1.0873212	0.9726707	1.2437371	0.9956152	0.9317171	0.7283251	1.1073048	1.6135948	1.0007716	0.9799231	0.9524644	1.0436653	1.0436653
NIPK	0.9697488	0.974451	0.9496436	0.975917	1.4792056	1.5551942	1.1605475	1.3261899	1.1046464	1.0978801	1.0976804	1.1842004	1.1155797	1.0779071	1.0779071
Phase-1 RCT-50	1.0054073	1.5311438	1.0665055	0.9632653	1.4154121	1.3493745	1.3062951	1.3459989	1.1649627	1.0318154	1.0359231	1.0169414	1.0932341	1.0569249	1.0569249
Sarcoplasmic reticulum calcium ATPase	1.196705	1.2235627	1.201415	0.9438598	0.4513507	0.6402129	0.6615394	0.7151505	1.2226083	0.9398891	1.1481997	0.9357179	0.867308	0.970721	0.970721
Phase-1 RCT-207	1.0585532	1.2186716	1.3824451	0.8910919	1.3058359	1.2389787	1.2965556	1.2607771	1.055738	1.1944637	1.0706694	1.0672678	1.0348487	1.0806477	1.0806477
Acetyl-CoA carboxylase	0.8656976	1.1247956	0.9208205	0.8700843	0.9283855	1.1893504	1.2015167	0.9865111	0.8605089	0.8835458	0.9090707	0.9521575	0.9678577	0.8862831	0.8862831
Cathepsin L sequence 2	1.1158152	0.8537839	0.9143055	1.1194373	0.8249791	0.8105725	0.6063736	0.7438993	0.9303828	1.4262623	1.0975043	0.9433064	0.9081122	0.9857865	0.9857865
Glucokinase	0.9040308	1.1316848	0.8982336	0.8436323	0.5609455	0.8398128	1.1654927	1.2534503	1.3458538	0.8936893	1.0086686	1.6297134	0.7240624	0.5798228	0.5798228
Gadd45	0.9981852	1.4807811	1.0111365	1.0017478	1.3256884	1.299629	1.342712	1.4860467	0.8952192	0.9578247	1.0938023	0.9245344	0.9832814	0.9891278	0.9891278
Phase-1 RCT-18	0.847479	1.2198851	0.9454225	0.9683269	1.0709858	1.1367725	1.0665774	1.0032573	1.0588115	0.9089097	0.9148553	0.9842959	0.9288537	0.9737144	0.9737144
3-beta-hydroxysteroid dehydrogenase (HSD3B1)	1.3011721	0.9952771	1.2317649	1.3482411	2.3129058	2.0049872	1.8091785	1.8775456	1.0488441	0.988741	0.9841229	0.7930035	0.8677079	0.6761611	0.6761611
Phase-1 RCT-221	0.6357262	0.7086809	0.7007161	0.8560172	0.9452898	0.8274027	0.6891304	1.0313028	0.7555975	0.9259038	0.9196285	1.0169015	0.9191205	0.8888701	0.8888701
Heme oxygenase	0.938485	1.1608096	0.8930439	1.2440006	1.1396204	0.9953123	0.9568135	0.9866343	1.016218	1.0809566	1.3735643	1.00102	1.2013853	1.0829836	1.0829836
Cyclin dependent kinase 4	1.2790134	1.1614503	1.1420301	0.9628421	1.8712351	1.4995345	1.7810838	1.6161106	1.0470572	0.9955096	1.0265772	1.0358717	0.9902448	1.0470725	1.0470725
Phase-1 RCT-75	0.9070368	0.9875463	0.985825	0.9916016	1.3885722	0.9698075	0.8976158	1.0570194	1.0881893	1.1892524	1.0077782	0.9610896	1.0738853	0.989449	0.989449
Phase-1 RCT-65	0.81102	0.8813787	0.8676654	1.0266972	2.0425692	1.62572	1.7619551	1.7665866	1.0039515	1.1961607	1.2901063	0.9653404	1.0963484	1.1762989	1.1762989
Cytochrome P450 1A1	0.909917	1.4776978	1.0538638	0.9687082	1.2154857	2.176667	2.088543	1.9552969	1.4072013	0.9802699	0.9202403	1.2744255	1.2827277	1.5018231	1.5018231
Peroxisomal multifunctional enzyme type II	0.9376046	0.7264782	0.8870834	1.0063287	2.671572	1.4174465	0.8539686	0.9167879	0.9481372	1.0268814	0.8275405	0.9039344	1.105777	1.0686063	1.0686063
DNA topoisomerase I	0.9284384	0.6882712	0.8547917	0.9788873	1.4643803	1.2986099	0.6775973	0.8594766	0.8932182	0.8508397	1.01601	1.0345421	0.985731	0.9375145	0.9375145
Focal adhesion kinase (pp125FAK)	0.9947648	1.5139595	1.055058	0.9004285	0.6071912	0.728883	1.0059913	0.904579	1.0249529	0.9327166	0.9460297	1.0046738	0.9989738	0.9571227	0.9571227
NGF-inducible anti-proliferative putative secreted protein (PC3)	1.0159398	1.2539036	0.9814874	1.1364367	0.882414	0.9635267	0.9289117	0.810518	0.9549859	0.8427872	0.8481897	0.9395412	0.8315586	0.8938019	0.8938019
Phase-1 RCT-82	0.9476677	1.523524	0.9420185	0.9070449	0.7025895	0.7952433	1.1746652	0.9143178	0.9336831	0.9198092	0.9835014	0.9923338	0.9923422	0.9807517	0.9807517
Senescence marker protein-30	1.0184888	0.6706753	1.0950288	1.1406283	0.6554651	0.6583819	0.3775666	0.4192783	0.7915637	0.6523272	1.0684735	0.9785754	0.7837327	0.6749392	0.6749392
Melanoma-associated antigen ME491	1.0089228	1.1242079	0.9229324	1.0268782	0.7845197	0.8659594	0.9788584	0.713054	0.7485291	1.0081222	0.8670077	0.96662	0.7895012	0.8603316	0.8603316
Activating transcription factor 3	0.8964248	0.8424462	1.2477546	0.9785423	1.4580142	1.898283	1.2958541	2.0678463	1.3807946	1.1472831	1.1841124	1.4645828	1.2468728	1.0715251	1.0715251
Tryptophan hydroxylase	0.8899578	0.6824432	0.8118462	1.1462892	2.4542472	2.410999	1.42548	1.5242419	1.056615	1.0711011	1.1535026	0.9257048	1.0069169	1.0325538	1.0325538
Zinc finger protein	0.9055662	0.6938676	0.835887	0.9499076	1.3983254	1.4658945	1.0178479	1.0603677	1.2716469	1.061783	1.1132207	0.9522577	1.103619	1.0478739	1.0478739
c-myc	1.0182568	1.453417	1.0473427	0.9852383	1.3697301	1.2445552	1.3993808	1.7979663	1.3446151	1.2089388	0.9455189	1.1075269	1.076363	0.9445518	0.9445518
Cholesterol 7-alpha-hydroxylase (P450 VII)	1.0982882	2.0509653	1.250733	0.9713134	0.5313051	1.4202547	1.7720687	1.0628024	0.6332693	1.128875	0.8503366	0.7955671	0.9705764	0.9450745	0.9450745
Ferritin H-chain	1.2925658	0.78948	0.9509149	1.240332	0.6093143	0.5511762	0.6058133	0.5375916	0.7655556	0.9064005	0.819886	0.8471689	0.8785505	0.9328309	0.9328309
Phase-1 RCT-197	0.9678097	0.9038767	1.0173031	0.9612361	0.7638151	0.7941616	0.9920073	1.089026	0.9044068	1.1559854	1.0394638	1.0805802	1.0223625	1.1421398	1.1421398
Phase-1 RCT-179	1.0984774	1.0714421	1.1396568	1.1583338	1.1373905	0.8271637	0.9283084	0.9054433	0.8237573	1.2473911	1.0652453	0.9710499	0.9449483	0.9783824	0.9783824
Phase-1 RCT-15	1.2165934	0.8420305	1.1084207	0.9602706	1.2607985	1.4797299	1.4840046	1.0983378	1.0844592	1.2938307	1.14612	0.9491843	1.0144848	1.0737084	1.0737084
Argininosuccinate lyase	1.1402718	0.901285	0.9868495	0.9198976	4.480811	1.866183	0.968739	1.325439	0.6925623	1.640069	1.414819	1.1419285	2.1548169	2.541465	2.541465
Phase-1 RCT-49	1.0019228	3.6708284	1.0704329	0.8506332	0.8910079	1.1023805	1.1171913	0.9914433	0.9914433	0.9914433	0.9914433	0.9914433	1.0446242	1.1136217	1.1136217
Carbonic anhydrase III	1.1296287	0.7115365	1.2608541	0.9141739	1.9664334	1.1512041	1.5677643	0.5416368	0.5530762	0.4967544	1.5671764	1.0396795	0.7442491	0.5995918	0.5995918

Proliferating cell nuclear antigen gene	1.0080376	1.4032357	1.1798093	1.075755	0.5614929	1.3423892	1.2230747	0.9960288	0.9176267	1.0970017	1.0408714	1.0058836
Integrin beta 1	1.2839816	1.2601422	1.146219	0.9881821	1.4596668	0.8735369	1.0025735	0.9868685	0.9450501	0.9800873	1.0357596	1.1580117
Caspase 6	1.1483971	1.2365146	1.0581696	1	0.9994767	0.9488566	0.9143029	0.9648404	1.0759934	1.0390072	0.9958042	1.0624574
Phase-1 RCT-116	1.0958657	0.9890918	0.9989336	0.8848883	3.2270191	1.9185466	1.9347474	2.616404	0.8311365	1.6470495	1.4503963	0.8869743
Phase-1 RCT-109	1.0551684	1.0914787	0.975318	1.0201867	0.8590411	0.7175077	0.6996204	0.7153949	0.74129897	1.111306	0.977453	1.1770811
Phase-1 RCT-71	0.996393	1.262195	1.0176653	0.9243626	1.2538561	0.7175077	0.6996204	0.7153949	0.74129897	1.111306	0.977453	1.1770811
Elongation factor-1 alpha	0.8605088	0.6405158	0.7723705	0.8664582	0.7571666	0.7529839	0.8246187	0.7350637	1.1449325	0.966876	1.0156159	0.8687082
Phase-1 RCT-189	0.8008957	1.0593635	0.9709875	1.01172	0.6980453	1.0753379	1.061102	1.0749852	1.3529398	0.8543288	1.2413398	1.0501451
Pylate kinase, muscle	1.0489587	0.9826922	0.9473725	0.8946341	1.554801	1.3950188	1.4128987	0.9844765	1.2129196	1.1042987	0.9984601	1.0765383
Nucleosome assembly protein	1.3161895	0.7461773	1.0809835	0.866243	1.4540367	1.3024613	1.0062547	0.8269138	0.8880569	1.066713	1.2414287	1.0107627
Phase-1 RCT-127	1.1620669	1.2713369	1.08586	1.0188742	0.8818009	0.9087317	1.0234084	1.1685897	1.1069552	0.9591553	0.9258835	0.9441446
Iron-responsive element-binding protein	0.9808629	0.9341193	0.9849295	1.0105638	0.8111386	0.717966	0.97966	0.8437884	0.848365	0.9487575	0.9258835	0.9441446
Phase-1 RCT-72	0.8276373	1.2357793	1.0064553	1.0093518	0.8626939	1.0220395	1.0221149	0.989338	0.9736293	1.1630369	1.1051718	0.9258835
Phase-1 RCT-144	0.9793329	1.3141469	0.9733074	0.9408198	0.7486181	0.7751261	1.0344529	0.9249013	1.0280219	0.901979	0.9716827	1.0284837
Phase-1 RCT-242	1.0450768	1.3873559	1.0758491	0.8410632	0.9280387	1.0941325	1.3387752	1.1202866	0.9785017	0.9618142	1.0016005	0.9794442
17-beta hydroxysteroid dehydrogenase, type 2	1.4487206	0.6969976	1.1555077	1.1101123	2.128221	1.9304622	1.3256708	0.5787742	0.3567661	1.2255769	2.138751	1.0666524
Phase-1 RCT-70	0.841387	0.9712986	0.8598809	0.9661358	1.0973467	1.0600516	1.0451529	0.9781556	1.0180413	0.9640293	1.0420454	1.022962
Ribosomal protein L13A	0.9960434	1.1315813	1.0419748	1.0440089	0.8515068	0.7143555	0.6908701	0.9789132	1.2460729	0.9968991	1.1772531	0.8422759
Cytochrome P450 2E1	1.0464361	0.9438023	1.047321	0.8660287	1.0001858	0.7147515	0.9589551	0.7966334	1.0952439	0.952735	0.7793698	0.6189453
AT-3	0.9144049	1.4297458	0.9747766	1.1775764	1.1092932	1.1519599	0.8723936	0.8369898	1.2876028	0.970089	1.3910724	0.8917418
Phase-1 RCT-270	0.8250377	0.6976289	0.8398075	0.8747118	0.896094	0.8447059	0.7932852	0.78453	0.7997179	0.8431378	0.9094623	0.7613346
Phase-1 RCT-123	0.9588804	1.3994205	1.0618527	0.9803233	1.076341	1.0188893	1.0781587	1.0540634	0.9640542	1.0327665	0.9378011	1.0322784
Alpha-2-macroglobulin, sequence 2	1.2446979	1.0256999	1.1155715	1.0054308	0.9877621	1.1435027	1.1852075	1.1899501	1.0210365	1.2051609	0.967052	0.9889271
Matrix metalloproteinase-1	1.2222726	0.7990318	0.9520495	0.8625777	1.0034385	0.8528717	0.8125105	0.5889108	0.82687	1.0300617	0.9343262	0.9084986
Beta-tubulin, class I	0.9549163	1.4322449	0.855743	1.0843277	2.4807625	1.4334471	1.4266701	1.5809557	1.2786525	0.9403483	1.0314034	0.9389623
Phase-1 RCT-161	0.959707	1.1610465	0.9934688	0.9541333	2.1769107	1.7720755	1.8289267	1.4206741	0.9565027	0.7537702	1.2644985	1.0436232
14-3-3 zeta	0.9673036	1.2611899	1.3101892	1.0822511	2.355444	1.5731218	1.1701683	1.3829998	1.0083851	1.0822741	1.1209632	0.8370943
Stem cell factor	1.134728	0.9799763	1.0488839	0.9219344	1.127844	0.9231771	0.9702274	0.9511242	0.9962795	1.1105206	1.2063893	1.0194987
Macrophage inflammatory protein-2 alpha	1.3557	0.9761956	1.1075238	0.9382888	1.2999276	1.2100937	1.0129354	1.043825	1.5169259	1.223386	1.1931536	1.0117875
Thymidylate synthase	1.1346177	1.951673	1.3067101	0.9717909	1.0342925	0.9720078	1.101407	1.0298001	1.0217847	0.9881159	1.2443552	1.0538572
c-Jun	0.9775224	1.085403	0.9639383	0.8620633	1.3901203	1.1260498	1.3708405	1.0247993	1.3437349	1.306656	1.5004582	1.2171007
Superoxide dismutase Mn	1.0460523	1.2479638	1.092292	1.238414	0.9719535	0.8542314	1.019026	1.0536046	0.9603038	1.0697415	1.0276743	1.1257976
Phase-1 RCT-73	1.0230572	0.9782122	1.0083344	1.051329	1.386829	1.4485353	1.3728833	1.2370431	0.9856027	0.9800001	1.0072176	0.9117415
Macrophage inflammatory protein-1 alpha	1.1824238	1.6834683	1.5444982	0.802558	1.0252994	1.3744589	1.1818838	1.7815073	1.4721205	1.1332587	1.0996436	1.2752288
Phase-1 RCT-214	1.0078163	1.1548727	1.3170553	1.2458215	1.1651486	1.2109371	0.8908194	0.9916065	0.8796887	0.8811618	0.8875946	0.7257708
NADH-cytochrome b5 reductase	0.7826852	0.7490249	0.9205517	0.8387539	1.1892797	0.8283449	0.7765053	0.7182639	0.8766104	0.9718253	0.9718253	0.9221873
Interleukin-1 beta	1.2068555	0.8212215	0.9703908	0.9973503	0.8670333	0.9595634	1.0282934	0.6190541	0.9050888	0.9741056	0.9875878	1.0139403
NADP-dependent isocitrate dehydrogenase, cytosolic	0.9701836	0.8623232	0.918551	1.3085232	0.8422471	0.7823732	0.5453488	0.559419	0.9058289	0.7484161	1.1027197	0.9581456
Phase-1 RCT-289	1.1400685	0.8869867	1.0105634	1.019051	1.1103321	1.007288	0.8544939	0.8065083	0.8539488	1.2053282	1.0401973	0.9939677
Glutamine synthetase	0.9724679	0.8683884	0.842847	1.049093	0.9964816	0.8208523	0.9865772	0.6583219	0.6890882	0.9078538	0.7599857	0.8692796
Phase-1 RCT-182	0.8366676	0.7772906	0.8851211	0.9321882	0.6896408	0.8327688	0.7115637	0.502935	1.0811851	0.8350681	0.8390075	0.8512477
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.0963092	0.988056	1.1322113	1.1181896	0.8458849	0.8643935	0.7038774	0.7591782	1.0174246	1.2058126	1.1333488	1.006145
Extracellular-signal-regulated kinase 1	1.1172776	0.8193423	1.0937374	0.9887208	1.7028501	1.3313763	1.8639518	1.6366782	0.8944496	1.0805581	1.2850258	1.0756288
Enferin	1.0754925	1.1337421	1.2379216	0.923813	1.3782345	1.2276901	1.2277554	1.0885555	1.4723369	1.0738713	1.1182309	1.0582236
Phase-1 RCT-78	0.8807785	0.9295158	0.9715889	0.9508783	1.1702471	1.1030843	1.039241	0.8610008	0.8754257	0.9141355	1.1189252	1.0930881
Phase-1 RCT-212	0.8807353	1.114313	0.916162	0.9363765	1.0870281	1.1776935	1.1028128	1.0394447	0.9747718	1.1306703	1.0193738	1.0934308
Phase-1 RCT-168	0.8207088	0.6704248	0.8131817	0.958487	0.8585935	0.662553	0.5320558	0.5888459	0.9166398	0.8917335	0.967769	1.067831
Lysyl hydroxylase	0.9753053	0.7047661	0.8949256	1.01154	0.9192871	0.762734	0.9625465	0.6867124	1.0398355	0.9280525	0.8161535	1.007509
Phase-1 RCT-35	0.6484741	0.8285705	0.8182570	0.9853105	0.7975545	1.0717057	1.2100164	1.0754652	1.1051395	0.9038169	1.257592	0.819069

MHC class I antigen RT1.A1(f) alpha-chain	1.1186316	1.0644019	1.0027851	1.0012399	2.6169622	2.57511	2.2506177	2.9980742	0.9573503	1.4316881	1.3004223	1.3803949	1.1831116	1.3042239
Phase-1 RCT-40	0.9152781	0.826957	0.8324946	1.0196509	0.7339942	0.7201094	0.8242553	0.5044735	0.9157896	0.7904112	1.0648025	0.943564	0.7239547	0.7279773
Cyclin G	1.2357011	1.2510049	1.1727731	0.9719053	1.3298053	1.4286854	1.4572672	1.4812899	1.2407701	0.9782873	1.0046062	1.0156518	1.1025336	1.2254035
Peroxisome proliferator activated receptor gamma	1.0346949	2.1819718	1.0971878	0.9804069	1.2769954	1.1746981	1.4618249	1.764595	1.3267925	1.2063422	0.996559	1.5850098	1.1310933	1.0976678
Phase-1 RCT-280	1.1283395	0.7555903	1.160006	0.9255565	1.0574163	1.281224	1.082166	0.8495334	0.9606007	0.982519	0.9897027	1.1369532	1.0490385	1.0490385
D-dopachrome tautomerase	0.862415	0.7160934	0.8090432	1.4854132	1.2697219	1.0475911	0.8089448	0.7344272	0.8438759	0.800127	0.8462267	0.8200441	0.7043289	0.716939
Phase-1 RCT-287	0.8973974	0.9260852	0.8938655	1.0203444	0.7856503	0.7270374	0.8315586	0.7629734	0.9171231	0.9742926	1.0620903	0.9437181	1.1534063	1.1490415
Phase-1 RCT-119	0.9366873	0.7203397	0.8453419	0.9709249	0.8009432	0.736276	0.8853802	0.9433053	0.9798847	1.2690235	1.1339738	0.940092	1.2261946	1.2588007
Thiodoxin-1 (Tx1)	1.199383	1.0892138	1.11131	1.5781048	0.7234774	0.7304493	0.7154251	0.6239842	1.0301775	0.9416493	1.1230812	1.0713118	1.0130364	1.008812
Phase-1 RCT-225	1.8204902	0.877703	0.7195414	0.7711036	0.5068119	0.5834054	0.7241688	0.9336801	0.8521106	1.1730174	1.3084153	1.6439751	1.0069077	1.2699995
Protein kinase C alpha	0.9228698	0.5568267	0.9254788	0.9184474	0.7094191	0.7038996	1.0521293	0.6562914	0.970502	0.9478711	0.9421928	1.1282324	0.9499368	0.9776735
Phase-1 RCT-87	0.997528	1.1143898	0.956871	0.8913809	0.8750656	0.8696955	1.13316	0.9052897	0.9184353	0.9918923	1.0109825	0.9889612	1.0406864	1.137469
Phase-1 RCT-59	1.156861	0.8134198	1.1321657	0.8107744	0.8571282	1.2150049	1.0701352	1.1085469	1.1522045	1.1959868	1.0027959	1.0496517	1.3092813	1.1927016
C4b-binding protein	1.181473	0.8977435	0.8584343	1.0176011	1.0769876	1.2457002	1.4125148	1.4171153	0.9663627	0.8815243	1.0091249	0.9634552	0.8713744	0.7801954
Phase-1 RCT-204	0.9891628	1.0815848	0.9683882	1.0224518	1.1951008	1.0011208	1.1851948	1.255808	0.8708163	1.0661837	0.9573806	0.9822216	1.1304886	1.1514928
Camilline palmitoyl-CoA transferase	1.1069888	1.2401621	1.3571017	1.1315383	2.3173766	1.3563243	1.5185031	1.3395013	1.1571155	3.821277	1.1909064	1.1261873	1.5373602	2.6286823
8-oxoguanine DNA glycosylase	1.0451355	1.5996459	1.1466529	0.9950694	0.9697124	0.948764	1.1443984	1.1986595	1.2205598	1.0434943	0.9880124	1.0882015	1.1066477	1.1859607
H-rev107	0.9680162	1.409853	1.096817	1.0581121	1.0031744	1.0118678	0.9563499	1.0284055	0.9652843	0.9886635	0.9502911	0.9951856	1.0533648	1.0180178
Preproalbumin	1.2233015	0.7253594	0.8939268	1.5344672	4.598472	3.039431	3.065234	2.1108387	0.7741756	1.1888758	0.8255016	0.6725461	0.8593947	0.9120059
Phase-1 RCT-177	0.9953614	0.7474806	0.9226621	1.3477937	1.7448574	1.3477274	0.7854078	0.8126515	0.9196194	0.9938718	1.0263578	0.8708639	0.9848968	0.899699
Phase-1 RCT-110	1.0485688	1.4263303	1.1013055	0.961236	0.9775465	1.1534055	1.2200881	1.1288898	1.1406824	1.0010053	0.9456122	1.0350056	1.0281701	1.0321643
Phase-1 RCT-227	1.010583	0.8560627	0.9928314	1.2171544	1.0387074	0.9183803	0.8986918	0.8490438	0.7737298	0.9510852	1.1657139	0.9551721	1.1404179	0.8738178
Neuropeptide Y	0.8813534	1.5922107	0.9479405	0.9241517	1.1255876	1.262041	1.2450336	1.1380357	1.1038357	0.957204	1.0818069	1.0248643	1.0265089	0.9954924
Phase-1 RCT-277	0.7828952	0.7233312	0.5615006	1.0852458	0.7135744	0.7488682	0.6178105	0.8129561	1.0278102	0.9368885	0.7784343	0.816762	0.9576152	0.8339835
Phase-1 RCT-229	0.946345	1.4116302	1.0437288	0.9588515	0.9821544	1.3723329	1.4595985	1.2241085	1.1767114	0.9211465	1.0518948	1.0090867	1.0167704	0.8859735
Phase-1 RCT-34	1.0821942	0.9877877	0.9030639	0.9353842	0.7944045	0.8208962	0.9668785	1.2241085	0.9853375	0.9110318	1.227123	1.0418711	0.8567238	0.9186472
Choline kinase	1.0001342	1.3453416	1.0942507	0.9780589	1.3683761	1.1744763	1.1965885	1.1550108	1.3598335	0.9688395	1.3755882	1.2771281	1.0615622	0.9865583
Phase-1 RCT-20	0.9623654	1.1525395	0.9870355	0.831388	0.9852194	1.2175905	1.3754785	1.3893232	1.052828	1.0153987	1.1305972	0.9739328	1.0724024	1.080595
Phase-1 RCT-248	1.0682054	1.209613	1.0254188	0.9434137	0.8846647	1.1325886	1.1648085	1.0198363	0.9768127	1.0309949	0.9514502	1.0965581	0.8665219	1.0382615
(1) Gene expression data for 6 hour timepoint are presented as mean ratio of treatment/control for all 6 hour predictive genes (Table 20).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 20 and as included in Table 32)														

Table 34

[illegible]

Proliferating cell nuclear antigen gene	1.0299654	0.9249895	0.8857636	0.9487572	0.8741393	0.8852767	1.6231809	1.254984	1.3308322	1.0204445	2.056137	1.4535215	1.4740138	1.3691646
Integrin beta1	1.0969945	1.1089368	1.1159241	1.0778109	1.1365919	0.9384832	1.948284	2.2543987	1.691816	1.3210272	3.7003593	1.8610729	1.0598472	1.0492255
Caspase 6	1.0822659	1.0233717	0.9826703	0.9940418	1.0026886	0.7578048	0.7578048	1.0710107	0.7905958	0.8747737	1.2563053	0.9047196	1.3844489	1.3780744
Phase-1 RCT-116	1.3454756	1.2611448	1.0612005	0.9222846	0.9810332	0.9725015	0.5983142	1.0733088	0.7338448	1.3415624	1.2693154	2.9811418	2.8088133	
Phase-1 RCT-109	1.1606028	0.9112358	0.9469143	1.0554012	1.0359797	0.9956228	1.2456201	1.6510758	0.728287	1.1496828	1.2894638	1.2747709	0.4924123	0.5262826
Phase-1 RCT-71	1.2488846	0.8846165	1.080993	0.9642878	1.1036463	1.1540539	1.0625636	1.4720643	1.0881327	1.035437	2.033831	1.3607856	0.9466104	0.9262803
Elongation factor-1 alpha	1.0182295	1.0619925	1.0313597	0.9548139	1.0243895	0.976829	1.330404	1.1346995	1.1268191	1.2676036	1.4499494	1.3983423	0.7502229	0.8597648
Phase-1 RCT-169	0.7389251	1.0824522	1.0230948	1.0575477	1.075723	1.3243555	48.93563	0.9705879	0.909151	0.7058793	1.0265826	2.5647087	1.8940941	1.0424566
Pyruvate kinase, muscle	1.1159333	0.9935244	1.0776857	0.9497718	1.0368557	0.909151	0.7058793	1.0265826	1.1384441	1.2884885	2.5647087	1.8940941	1.0424566	
Nucleosome assembly protein	0.9506329	1.1925362	1.325094	0.6179134	0.6970356	1.052376	0.6243787	0.5808808	0.8003915	0.8643791	0.9956513	0.6790462	0.8322721	0.8846884
Phase-1 RCT-127	0.9376865	0.9452556	0.9944046	1.1202545	0.9986954	1.0609326	1.3025404	1.2364187	1.5875487	1.2843637	2.0288467	1.6490371	0.9575567	0.9470899
Iron-responsive element-binding protein	1.0034587	1.0270617	1.0318418	0.8845413	1.2101266	0.8743286	0.6161139	0.4021433	0.5363564	0.7518585	0.4675145	0.5653893	1.0240958	0.9406677
Phase-1 RCT-72	1.1704144	0.9644856	0.9418323	1.0146052	0.9565213	1.1565528	1.2187476	1.369233	1.1061096	1.1816725	1.4818263	1.9678983	0.9259833	1.000445
Phase-1 RCT-144	0.8513773	0.9164333	0.9341134	1.0557394	0.9374691	0.9194766	1.6013553	1.3763508	1.474846	1.1437183	1.6977183	1.3412372	0.8179072	
Phase-1 RCT-242	0.9670332	1.0353872	0.8868118	1.0985578	0.9969879	1.0035048	2.9660199	4.75165	3.497128	1.7929516	2.57032	3.6428614	1.2112051	1.1058719
17-beta hydroxysteroid dehydrogenase, type 2	0.9455719	1.4876153	1.6390032	0.4567545	0.5456439	1.3109382	0.2103749	0.3442984	0.5082181	0.2978527	0.223705	0.2191122	0.7175208	0.835137
Phase-1 RCT-70	1.1290449	1.0571572	1.0744861	1.0240337	1.1924028	0.9736953	0.887432	0.7820103	0.8275557	0.6928653	0.5505976	0.6027919	1.1632639	0.957719
Ribosomal protein L13A	1.0647409	0.9630259	0.9474955	1.1012404	1.0866926	0.9724045	1.4947401	1.6624883	1.2439842	1.2858732	1.5497344	1.5530878	1.0576942	1.0758667
Cytochrome P450 2E1	1.0906998	1.1024042	1.0060757	0.6459591	0.8418367	0.7631534	0.4247553	0.79892	0.6889061	0.5190199	0.6842659	1.6259478	1.2908205	
AT-3	1.0327208	0.9828643	1.0078847	1.0595989	0.9622789	1.0087639	1.0424607	0.9683421	1.0546159	1.1528136	1.1333535	1.2718793	0.9432427	0.9593766
Phase-1 RCT-270	0.8706654	1.004659	0.9690765	1.0862479	1.0955831	1.1575918	0.4317776	0.4603207	0.4038426	0.5108082	0.2469673	0.3804783	0.5518974	0.63035
Phase-1 RCT-123	1.0295242	0.9570273	0.915875	0.996748	0.9816834	0.9575957	0.9983227	0.8135947	1.0918111	0.9628128	1.2099728	1.0576905	1.1343991	1.0553668
Alpha-2-macroglobulin, sequence 2	1.2440596	0.9631097	0.9859294	1.0488796	0.9737954	1.0991838	1.2402723	1.5531377	1.2650043	1.3945466	1.7211853	0.8741447	0.9336213	
Matrix metalloproteinase-1	0.8578755	1.0727559	0.9830374	1.1279216	1.0597799	1.0388247	0.7313246	0.9457606	0.8353539	0.9780733	1.2289183	1.3269477	0.774088	0.7634659
Beta-tubulin, class I	0.5525056	0.8657698	0.8965473	1.0923228	0.7785361	0.7423398	1.6665593	1.3413569	0.9303423	0.9279446	0.9114956	2.3014428	1.8559631	
Phase-1 RCT-161	0.607171	1.2304059	1.112706	1.1459614	0.7651397	0.9888889	0.8265385	0.3891223	0.9803423	0.9279446	0.9114956	2.3014428	1.8559631	
14-3-3 zeta	0.8578984	0.9789969	0.9227863	0.9609065	0.913325	0.8978981	0.9108708	1.7060933	1.374607	2.404773	1.5407195	1.3666638	1.3138492	
Stem cell factor	0.7633883	0.9900981	1.069753	1.0040366	0.9150697	0.8976982	0.5494678	0.7966409	0.8068062	0.4735835	0.3487059	0.3413201	1.3101155	1.5282516
Macrophage inflammatory protein-2 alpha	1.1150115	1.3293363	1.0523502	0.9743962	0.9353344	0.9217368	5.360902	4.1258607	2.837201	1.4550628	2.597739	2.5921078	1.0994107	1.1934859
Thymidylate synthase	0.9753314	1.283213	1.0161449	0.9307574	0.9592072	0.9162862	0.7209763	0.9231061	1.0498892	0.7390853	0.5231131	0.4614306	1.2370056	1.3519739
C-Jun	1.3635511	1.2254646	0.9438435	0.8068848	0.9074928	1.0283031	1.4625305	1.8214475	1.0038534	1.3945466	1.7211853	0.8741447	0.9336213	
Superoxide dismutase Mn	1.1636626	0.9598176	1.0363431	1.1149348	0.9966605	0.9703679	20.531837	12.397959	16.049502	13.238676	25.926502	21.8753	0.9747338	1.0315026
Phase-1 RCT-73	0.9726987	0.9718703	1.0021045	1.0047433	0.9802641	0.8725392	0.8449552	0.6589457	0.8202743	1.0047376	0.812212	0.5989307	1.2580303	1.1285874
Macrophage inflammatory protein-1 alpha	1.0442431	0.9632984	1.0113952	1.0514163	0.9907138	1.0812586	9.432194	2.2058752	1.5598359	1.9972274	9.395047	2.5032089	1.9005556	2.255218
Phase-1 RCT-214	0.6187451	1.2086112	1.1501125	0.9247065	1.0162979	0.8233785	0.444227	0.2547292	0.4908926	0.6163841	0.874601	0.3465505	0.3917808	0.7229014
NADH-cytochrome b5 reductase	0.9280016	0.7793084	0.9567314	0.7408374	0.9120005	0.8200346	0.6654027	0.367132	0.6054735	0.358667	0.3365015	0.4537889	0.7588252	0.7110555
Interleukin-1 beta	0.9276232	0.9634762	0.9376433	1.1644472	1.0848499	1.0146818	5.399458	1.2263435	2.880963	1.1058063	1.424196	1.5072981	0.8950957	0.8709363
NADP-dependent isocitrate dehydrogenase, cytosolic	0.7353923	0.9265806	1.1571048	0.9219812	0.9802655	0.9801148	0.4421812	0.2603418	0.3997504	0.674601	0.3465505	0.3917808	0.7229014	0.6312189
Phase-1 RCT-289	0.9800791	0.8380813	0.9744469	0.9009947	0.9569861	0.9224033	0.7643885	0.5165952	0.7193102	0.6669847	0.5659197	0.6869847	0.7693361	0.791154
Glutamine synthetase	1.2060397	0.8932053	0.9068219	0.9232394	0.8141592	1.0149715	2.584585	1.6971004	1.9601379	1.2630124	1.17765	1.4402163	0.8578215	0.8370555
Phase-1 RCT-182	0.9121343	0.890106	0.9173531	0.8357683	0.8645767	0.9068827	0.7525027	0.489632	0.7202801	0.4762563	0.4048491	0.5181661	0.6825464	0.6786026
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.0041174	0.9653044	1.0942245	0.951561	0.9726593	0.8963175	2.1065512	1.6101443	1.3191372	1.534732	2.27646	1.857328	0.9810194	0.8886622
Extracellular-signal-regulated kinase 1	0.7869572	1.3789945	1.2503301	1.2218285	0.8259686	1.0389146	0.8245113	0.9403281	1.0643568	0.2183505	0.1415699	0.1394627	1.4962962	1.7380564
ErmA	1.03155	0.9834827	1.0285655	1.0402478	0.8535997	0.8224931	0.8678658	0.9476531	0.8109267	0.7483903	0.5317437	1.0777112	1.1288517	
Phase-1 RCT-78	0.9554932	1.036174	1.255184	0.9098462	0.954085	0.9955112	0.9443744	0.7088965	1.0357363	0.837363	1.0241861	0.7169935	0.7649793	0.9088503
Phase-1 RCT-212	0.9932917	0.8385548	0.9999468	1.0203595	1.0179217	1.0982666	0.8302221	0.7993874	0.8872975	1.0228524	1.011859	1.0400214	1.201728	1.073962
Phase-1 RCT-168	0.7108972	0.9605346	1.0630084	0.8640158	0.9280697	0.901916	0.6184324	0.3625264	0.7827294	0.5803307	0.5531787	0.611268	0.6242065	
Lysyl hydroxylase	0.9791673	0.9072464	0.9281597	0.9817754	0.9135436	0.9275596	1.3566615	1.4077295	1.268237	1.0859128	1.0776505	1.1825135	0.8742588	0.8487374
Phase-1 RCT-55	0.9248211	0.835498	0.8632738	0.9511315	0.9088479	0.954855	1.1280015	1.2206091	1.0474926	1.12711	1.5746086	1.5776507	0.6394867	0.5346103

MHC class I antigen RT1.A1(f) alpha-chain	1.2738571	1.0519633	1.0611436	0.9614006	1.1066346	0.838361	1.5966864	1.6918482	1.9732311	1.5030735	2.1590161	2.450555	5.509003	4.330819
Phase-1 RCT-40	0.7241561	0.97362	0.8667274	1.202049	0.9851807	0.7941262	0.6146483	0.4282304	0.5168296	0.612667	0.4714623	0.4964311	0.5582312	0.6684598
Cytlin G	1.1592332	1.0911762	1.162767	1.1554235	1.0402974	1.0339515	3.248979	3.4577875	2.9949992	1.5611303	3.1243408	2.611184	1.4923977	1.660195
Peroxisome proliferator activated receptor gamma	1.1105576	1.3875216	1.0355848	0.9186547	0.936335	0.8823621	0.6611542	0.8398752	0.9596175	0.5613834	0.4179068	0.3650779	1.6823552	2.0147814
Phase-1 RCT-280	1.1940002	1.2342781	1.0894498	1.2267095	1.0038025	0.8396837	0.9345424	0.7705086	0.8217165	1.0690307	1.0215472	0.9014245	0.9354727	1.0299221
D-dopa-choline tautomerase	0.7748554	0.7685982	0.8952858	0.8667055	0.9371771	0.9652985	0.6214878	0.3953805	0.4686949	0.4838556	0.4243316	0.4995916	0.6687587	0.6982998
Phase-1 RCT-287	1.1162273	0.9477836	0.9604146	1.0962455	0.8712052	0.8461351	0.9582894	0.4609412	0.7396115	0.9858618	0.7802296	0.7561602	0.9893184	0.9468439
Phase-1 RCT-119	1.2930411	1.0418226	0.9681125	0.8698712	0.9049486	1.2729532	0.6594039	0.6327754	0.7968408	0.5696921	0.4240459	0.5633097	0.6634553	0.7265123
Thioredoxin-1 (Trx1)	0.8663642	0.9080933	0.9667803	1.100456	1.1160744	0.9965038	2.822328	2.4958155	2.0429754	2.3659551	2.6454837	2.7709494	0.4623632	0.5159885
Phase-1 RCT-225	2.112223	0.8094559	1.1413121	1.0842501	1.0993338	0.7182935	1.0377507	1.0879877	0.8283416	1.0797901	1.2383788	1.6334157	1.6080526	1.4475479
Protein Kinase C alpha	1.0001739	0.9302001	0.9086485	0.978628	0.9818844	0.9488993	0.8701847	1.080307	0.7707009	0.8777539	0.9323966	0.8934742	0.7804998	0.7101405
Phase-1 RCT-87	1.1168786	0.9133942	1.0042148	1.0193317	1.0516809	1.02899	1.457434	2.1432896	1.2829205	1.1859186	1.074945	1.5530538	0.7801647	0.8196869
Phase-1 RCT-59	0.9966311	1.0225185	0.9876539	1.0568515	1.0568336	1.0814726	2.68238	2.423896	1.2829205	1.3436365	2.5287857	0.8281634	0.7822855	1.0337437
Cdk-binding protein	0.6744671	1.3865802	1.073919	1.36641	1.0807018	1.303882	0.8989053	0.9883078	1.0573431	1.9719384	2.217614	2.1400652	1.1352882	0.8873408
Phase-1 RCT-204	1.1952876	0.9873692	0.9944999	0.9995009	0.9722573	1.0208148	0.9971521	0.9422084	1.1793935	1.09233	0.8265691	1.3370055	1.1963025	1.1313006
Carnitine palmitoyl-CoA transferase	2.2839532	1.3156136	1.5311923	0.7671196	0.8836854	0.8662098	0.5530671	1.6048687	0.7703967	0.8100183	0.8265691	0.4676666	1.2291233	1.5312753
8-oxoguanine DNA glycosylase	1.0870602	1.0826445	1.0254344	1.1597703	1.0345509	1.071013	0.8076708	1.0542516	1.2042111	0.9814477	0.8082782	0.9434683	1.1086553	1.1691469
H-rev107	1.0201252	1.1654503	1.0211188	1.0884885	1.0170335	1.0368363	1.1952735	1.1315634	1.1548426	1.1323782	1.3529751	1.8284873	1.1732174	1.0663973
Preproalbumin	0.7670341	1.105329	1.0150822	1.101477	0.9570871	0.9338915	0.9238036	0.5736989	0.9290387	1.3461627	1.2906474	1.332073	1.7008556	1.5602569
Phase-1 RCT-177	0.9107521	1.0154182	1.028458	1.0590694	1.0333862	0.9006326	0.7138494	0.7494823	0.5520546	0.8722184	0.8812247	0.7464384	0.8374366	0.8639384
Phase-1 RCT-110	1.0382303	0.9763002	0.9388783	0.9699639	1.0177981	1.10307645	0.977665	1.0942925	1.2048389	0.9443737	1.2539673	1.1354356	1.2568412	1.2213258
Phase-1 RCT-227	1.1657801	1.2050165	1.5869582	0.8670942	0.9882238	0.9907143	0.7639402	0.5418113	1.028398	0.7058301	0.5750176	0.6493662	0.7290695	1.8075896
Neurotrophide Y	1.0244286	0.9760039	0.9896478	1.0055175	0.9759518	1.0927428	1.388911	0.9017201	1.3144174	0.9399234	1.3766555	1.1883028	1.1026388	1.0877933
Phase-1 RCT-277	0.8128217	0.9076335	1.0188312	0.9408156	1.0169227	1.0307151	0.8717851	0.527112	0.8771951	1.1795953	1.2288909	1.1694478	0.8633755	0.8049255
Phase-1 RCT-229	1.0636551	0.9705339	1.0188312	0.9442283	1.0007714	1.0198772	0.9173963	0.8978014	0.9865973	0.8273019	0.9226742	0.8515185	1.3243006	1.2714816
Phase-1 RCT-34	0.6585795	1.0098627	0.8561175	0.9200938	0.9737912	0.9846324	0.4185021	0.4070748	0.5891155	0.8148992	0.7392666	0.7638734	0.7148687	0.6688721
Choline kinase	1.0498606	0.9060388	0.8861998	0.9791244	0.9503803	1.0580543	0.9851046	1.2172351	1.012555	0.942351	1.1766359	1.0878589	1.3631154	1.7612898
Phase-1 RCT-20	1.0997168	0.9448881	0.9703032	0.9917864	0.9711199	1.04003	0.9273385	0.994029	1.9000743	0.9289893	0.991554	0.9225959	1.3938162	1.5435228
Phase-1 RCT-248	1.0740094	0.9741902	0.9360652	1.0378385	0.9905203	1.0141878	0.9772486	1.2599342	1.0836613	1.056177	1.0893133	1.0862382	0.9072105	0.7830525
(1) Gene expression data for 6 hour timepoint are presented as mean ratio of treatment/control for all 6 hour predictive genes (Table 20).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 20 and as described in Table 32)														

[illegible]

Integrating cell nuclear antigen gene	0.9504591	1.341481	0.9950362	1.0171561	0.9953101	1.0281152	1.060467	1.0730444	1.060568	1.0893956	1.0287297	1.123764	0.9984905
Integrin beta1	1.0848004	0.937654	1.0585115	1.0856451	0.9953101	1.0281152	1.060467	1.0730444	1.060568	1.0893956	1.0287297	1.123764	0.9984905
Caspase 6	1.064221	1.1083107	1.0865868	0.8604817	0.9374215	1.1174734	1.1628164	0.9091198	0.9852656	0.9488999	1.1624016	0.9317371	1.2336656
Phase-1 RCT-116	4.3035154	3.3481505	3.9377794	0.9549814	0.8752465	0.9549814	0.8752465	0.9549814	0.8752465	0.9549814	0.8752465	0.9549814	0.8752465
Phase-1 RCT-109	0.758065	0.3605688	0.5422646	0.9404335	1.1953714	1.2668154	1.0482209	0.1070625	1.1010877	0.7723828	0.8068127	1.0853814	0.971308
Phase-1 RCT-71	1.0715241	1.0643274	1.0670989	0.8677384	0.8124172	0.8103629	0.9418117	1.0041296	1.0837991	1.0497049	0.9037051	0.8359902	0.9700472
Elongation factor-1 alpha	0.7648893	1.6553217	0.9637824	1.0805078	1.0436999	1.3199021	0.9791168	0.9765573	0.96508	0.9628111	0.9045825	1.1908307	0.8647324
Phase-1 RCT-169	0.8365903	0.9174885	1.1174746	1.118112	0.9038318	0.9241813	0.9053956	0.8210533	0.8577768	0.9560477	0.9100347	0.6837238	1.0000807
Pyruvate kinase, muscle	1.0278003	1.3567251	1.2501168	0.9835986	1.0044435	1.0428089	1.0459358	1.09203	1.0301634	0.8849154	0.8849927	1.0208664	1.1918095
Nucleosome assembly protein	0.8544565	0.9650805	0.9009547	0.8828291	0.6443229	1.1037319	0.7818153	0.6923288	0.8108627	1.1285776	0.9166316	1.111679	0.9762622
Phase-1 RCT-127	0.9829803	1.016016	1.1130027	0.9127769	1.0839665	1.2140782	1.0530958	0.8960848	1.0098537	0.8120655	0.8761226	1.1731842	1.4712149
Non-responsive element-binding protein	1.1735312	1.3065581	1.2260995	1.0086617	1	0.8734257	1.166402	0.9576453	1.064835	0.9665768	1.170347	1.0841298	1.0913563
Phase-1 RCT-72	0.4802456	1.2682431	1.44523982	1.017782	0.8160432	0.8034728	0.9441825	1.3333243	1.2053462	1.3740662	0.857113	0.9778121	0.8497456
Phase-1 RCT-144	1.0888162	1.2009839	1.401608	1.1579542	1.1704141	1.4015281	1.2898822	1.0578877	1.1004744	0.9578937	0.8046352	1.0667235	0.9991027
Phase-1 RCT-242	1.3071805	1.0817133	1.5210397	0.8165927	0.8228148	0.9005507	0.9368073	1.0072488	1.0268692	1.0261354	1.1014955	1.0172472	0.9477395
17-beta hydroxysteroid dehydrogenase, type 2	1.0889945	0.9754195	0.7014058	0.3759749	0.394173	1.0185326	0.7033878	0.4854273	0.5428285	1.7431762	0.7801057	1.1655952	0.8895919
Phase-1 RCT-70	1.0620308	0.9978298	1.3304162	0.9621158	0.9220058	0.8368836	1.0256853	0.9713092	0.8758042	0.947043	0.8712532	0.9054014	1.0029447
Ribosomal protein L13A	0.8940989	0.4019589	0.393758	0.990426	1.0001706	1.3010312	1.2461081	0.9581491	1.0040352	0.871541	0.7609826	0.7667542	0.9259638
Cytochrome P450 2E1	0.9595326	1.3030417	0.7876719	0.7650495	1.0111758	0.7427582	0.4978948	0.6841785	0.8348579	0.899052	0.9165082	0.7085984	1.0474955
AT-3	1.074381	1.067378	1.1821375	0.7742634	0.8204636	0.9644585	0.8813297	0.9128751	0.8667017	0.832455	0.9636016	0.9138482	0.9201775
Phase-1 RCT-270	0.8534871	0.8087534	0.6133242	1.0632771	0.9553252	0.7021761	0.8454317	1.1571403	1.24947	1.292048	1.0085981	1.2976952	1.1083677
Phase-1 RCT-123	1.214826	1.031317	1.336416	0.9722835	1.0028666	1.0484949	0.9390423	0.9714688	1.0018218	0.9965871	1.0039306	1.0140212	0.8933343
Alpha-2-macroglobulin, sequence 2	0.7708887	0.5716918	0.9547036	0.8112778	0.791016	0.7512797	1.0257317	0.9867247	0.831696	0.7777333	0.9252778	1.1032748	0.5448995
Matrix metalloproteinase-1	0.6770403	0.6632772	0.964018	0.7559583	1.0129212	0.9481756	1.5033832	0.9882247	0.9132081	0.8350927	0.9575033	0.8918539	1.037689
Beta-tubulin, class I	2.015382	1.7375705	1.7845248	1.2701181	1.45566	1.2612182	1.1443676	1.5627121	1.3392687	1.2407404	0.9596803	0.7458804	0.9373528
Phase-1 RCT-161	1.2933281	1.5659357	1.7074088	0.8985872	0.8265938	0.8613675	0.9533529	0.9972942	0.8001935	1.0658585	1.0742984	0.9282739	1.243417
14-3-3 zeta	1.7261057	1.8024441	1.6705578	1.4222497	1.2357888	1.2314328	1.4446098	1.160863	1.0961487	1.005734	1.2140929	0.9284404	1.12882
Stem cell factor	1.0954492	0.9288839	0.8150577	1.0106875	0.9234433	0.9274489	0.7044489	1.0127119	0.843593	0.9588356	0.8686059	0.6594958	0.878501
Macrophage inflammatory protein-2 alpha	1.3763627	1.372251	1.4357891	0.8197635	0.9817379	1.1691839	1.0630679	0.9935693	1.1352926	1.0100117	1.2426208	1.0782763	1.2450438
Thymidylate synthase	1.2803364	1.2987072	1.3412137	0.7803205	0.8352646	0.9589863	1.0577105	0.6526539	0.7385396	1.001714	0.7001816	0.7886652	0.6894252
c-Jun	1.6319388	1.7008042	1.5959191	0.8109295	0.8289388	0.7547144	1.005337	0.8324213	0.8547956	0.8272472	1.520916	1.058755	0.9801368
Superoxide dismutase Mn	1.2036241	1.0403733	0.813362	1.225486	1.153862	1.2610024	1.1442118	1.1333251	1.084696	1.1687912	1.1475984	1.24018	1.071405
Phase-1 RCT-73	1.3502263	1.1141754	1.1966848	1.1238501	0.988459	1.0635642	1.0228536	0.9447477	1.0407711	0.9823728	1.053366	0.9918321	1.0223083
Macrophage inflammatory protein-1 alpha	1.7505885	1.4021825	1.3475821	1.3000499	1.3030622	1.3687288	0.9140722	0.9784293	1.0254483	0.9944513	1.0255982	1.0331396	1.1438928
Phase-1 RCT-214	1.273834	1.2565428	1.007372	1.0716561	1.0757092	0.9974599	0.9477713	0.8327148	1.0279021	0.8965928	0.8370789	0.7112196	0.7855712
NADH-cytochrome b5 reductase	0.900146	1.0819883	0.8834138	1.0321225	1.0650631	0.9352624	0.9715114	1.0007405	1.2125204	1.1356388	0.85391	1.1467522	0.9534244
Interleukin-1 beta	0.8287858	0.8545473	0.9697684	0.8267312	0.8509211	0.93448	1.4084119	1.0288462	1.01339	1.0355874	1.0837005	1.0044345	1.087687
NADP-dependent isocitrate dehydrogenase, cytosolic	1.0289357	0.8029274	0.7780947	1.2033482	1.2194312	1.0507338	0.9435595	1.1168	0.8844763	1.0826084	1.031399	0.8522132	0.7667258
Phase-1 RCT-188	1.0177592	0.8327985	0.8660202	1.1613065	0.9661787	0.9535328	1.0071944	0.9590958	1.0390788	1.0353521	0.9744958	1.0383286	1.0117488
Glutamine synthetase	0.9013749	0.9709448	1.1017735	1.0163764	1.0810827	0.8440934	1.266148	0.6483477	0.6585429	0.8646696	0.6893234	0.6080985	0.7349125
Phase-1 RCT-182	0.6531465	0.7537136	0.8888111	1.1450417	1.2700547	1.1425049	1.0442497	1.025232	0.8328319	1.0800527	0.8492497	1.0134063	0.9788052
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.7973788	0.7220284	1.1488587	1.1488587	1.2802948	1.2934208	1.1191027	0.844881	0.9887558	0.784891	0.7819559	0.7620481	0.9093642
Extracellular-signal-regulated kinase 1	1.5942118	1.2577571	0.7783185	0.862587	0.938346	1.06625	0.4305808	1.2613025	0.6866677	2.0808813	0.7588863	0.5457837	0.3801158
Ererin	1.3627053	0.9964275	0.8552358	1.0458349	1.098714	0.696991	1.0511054	1.0163149	0.9938058	0.9168198	0.9386301	0.9217837	1.1504043
Phase-1 RCT-78	1.0251043	1.1065598	1.0186948	0.9887805	1.0003217	1.088044	0.9763737	1.1788602	1.0750444	1.1497099	1.2694222	1.2497126	1.2589848
Phase-1 RCT-212	1.2615035	0.6664614	0.840643	0.9865258	1.0280979	0.9600404	0.902106	0.8342893	0.9532291	1.0466273	0.788644	0.8374852	1.058466
Phase-1 RCT-168	0.9678386	0.7510443	0.7091709	0.9810729	0.9283077	0.9045349	0.8858248	0.968666	0.8852228	1.0424283	0.8560921	0.8773232	0.7999534
Lysyl hydroxylase	0.9645497	1.0341085	1.1361778	0.9610851	0.9791007	1.1030238	1.1335691	0.7968217	0.7542306	0.8714478	0.7433102	0.8332204	0.8289184
Phase-1 RCT-55	0.5181779	1.5971804	1.1171635	0.6851624	0.6775442	0.7020083	0.9551498	0.9814959	0.9040124	1.0063313	0.5655928	0.5382698	0.7552479

MHC class I antigen RT1A1(f) alpha-chain	7.945626	2.1271622	4.445193	1.3666476	1.3390242	1.1774933	1.3408306	1.227902	1.2196568	1.2455714	1.0230098	1.1611935	1.0786787
Phase-1 RCT-40	0.706078	0.8084265	0.8748058	1.1213188	0.9700915	1.058306	0.9064109	1.0762416	0.8685903	1.0598844	0.834812	0.856204	0.8972715
Cyclin G	1.4946433	1.8336625	2.3144493	0.8454679	0.9870234	1.2621891	0.8842859	1.0881777	1.07105	1.13836	0.9985842	1.1109804	1.0575448
Peroxisome proliferator activated receptor gamma	1.3740038	0.7963386	0.6984937	0.6550341	0.7680935	0.8708816	0.9201374	0.8521876	0.6946006	0.5081223	0.7181029	0.7923243	0.8880874
Phase-1 RCT-280	1.0263124	0.8802281	0.7488914	0.8659974	1.0292977	1.3050967	1.2253289	1.0432798	0.9739839	0.9826619	1.357472	1.0601299	1.0689518
D-dopachrome tautomerase	1.0133225	0.8292806	1.0142854	0.9656038	0.9928342	1.1892832	0.8611282	1.1326549	0.9455876	1.3615543	0.8351667	1.1992284	0.6443265
Phase-1 RCT-287	1.081758	1.0800303	0.9151021	1.2305877	1.1143019	1.1611038	0.9759284	0.9744274	0.8976533	0.8774621	0.9916574	0.8884593	0.9526708
Phase-1 RCT-119	0.6846422	0.4547555	0.4630654	0.8092918	0.9078229	0.7854391	0.5237284	0.8747508	0.8412503	0.9952681	0.8659082	0.9657198	0.991219
Thioredoxin-1 (Trx1)	0.6566889	0.3870278	0.5102024	1.0253559	0.9609112	1.1674062	1.2684361	1.0633303	1.0357592	0.9787087	0.9552776	0.9095519	0.9310074
Phase-1 RCT-225	1.5049703	0.5220652	0.771519	1.2089598	2.2408903	2.0692575	1.1831052	1.1095155	0.7993423	0.9495663	0.7460682	0.8009132	0.8858112
Protein kinase C alpha	0.7583554	1.1559806	0.9539278	0.812669	0.75761	0.9180612	1.0347658	1.0687315	1.1513267	1.0755838	1.0558159	0.9942247	1.0358374
Phase-1 RCT-87	0.6922123	0.9987872	0.9484658	1.0835038	0.9883269	1.186347	1.0100102	0.9951307	1.0005308	1.06798	0.9291108	0.946898	1.0775662
Phase-1 RCT-59	1.2067604	1.0969381	0.9339778	0.9202836	0.972082	0.8776463	1.0198094	0.9094712	1.1253064	1.0806004	0.9966924	1.0882748	0.981392
C4b-binding protein	1.2370822	0.9423858	0.689967	1.1483116	1.1230686	1.4638089	0.7374078	0.7613713	0.7083088	0.7911043	0.9865399	0.857442	0.7946873
Phase-1 RCT-204	1.2013448	1.0251052	1.2978596	0.8495504	1.0157119	1.092109	1.0024334	1.0739672	1.0435286	1.1053118	0.9269427	1.0444175	1.0060908
Camitine palmitoyl-CoA transferase	3.0166125	1.3086743	2.5445309	0.9583016	1.0296039	1.2254568	1.3172252	0.9901516	0.9969688	0.8743463	1.1339796	1.0564288	0.9857124
8-oxoguanine DNA glycosylase	1.1661803	0.991453	1.0789471	0.8413288	0.8294979	0.9684202	0.9745966	1.015807	0.9513495	0.8438926	1.0248638	0.945156	0.9961065
H-rev107	1.285059	1.1854513	1.8009129	0.8680386	0.97304	0.975757	0.8726575	0.9595378	0.9839644	0.8785559	0.887351	0.9573618	0.924049
Preproalbumin	2.0477915	4.42191	1.4938846	1.1245829	1.0970485	0.8017859	1.0576568	0.9703915	1.168751	1.0977635	1.0383672	1.3389838	1.0649399
Phase-1 RCT-177	0.9886079	0.9092165	1.1839718	1.2160796	0.9896467	1.1506846	1.0038823	1.1120609	1.077332	0.8891019	1.0436306	0.9575945	1.1552698
Phase-1 RCT-110	1.3652238	1.1462941	1.5387638	0.9248425	0.8950687	0.9022322	0.9585538	0.9793769	0.949418	1.0365928	1.0343928	1.0189517	0.8946505
Phase-1 RCT-227	1.0514113	1.3207853	1.3800428	0.8571524	0.8817468	0.9113066	0.9171492	0.9786442	1.0256027	1.0152079	1.0010886	1.077713	1.0202055
Neuropeptide Y	0.6490801	0.8303464	0.6902919	1.054546	0.926468	1.0279601	0.9999609	1.2863277	1.036791	1.0844696	1.3995478	1.3316028	1.4833747
Phase-1 RCT-277	1.0514113	1.3207853	1.3800428	0.8571524	0.8817468	0.9113066	0.9171492	0.9786442	1.0256027	1.0152079	1.0010886	1.077713	1.0202055
Phase-1 RCT-229	0.874599	0.8947606	1.0283706	0.7698549	0.9175957	0.7710705	0.7928301	0.9113821	1.2384039	0.7308898	0.8449046	0.7626158	0.8432234
Phase-1 RCT-34	1.3368885	1.2079084	1.3988844	0.8803108	0.8955528	0.9185297	0.8667984	0.9953741	0.9833824	1.0091054	1.0281692	1.0938998	1.0759592
Choline kinase	0.8140321	1.1975708	0.8327398	1.8537018	1.5218847	1.3086714	1.0601436	1.0585179	1.0462052	1.1479174	1.0504084	0.8275412	1.0151272
Phase-1 RCT-20	1.7444603	0.87523	1.017467	1.057891	1.0676453	0.7368851	1.0030779	1.1568407	0.8518518	1.0471545	1.0252645	0.9372841	0.8775187
Phase-1 RCT-20	1.1501327	1.1773366	1.6918511	0.9927102	0.8998685	0.9089376	0.9491751	0.9957871	1.0762982	0.9767111	1.0082696	0.9874384	1.4968775
Phase-1 RCT-248	1.1211339	0.6294681	0.8195462	0.910331	0.8343278	0.9607132	1.0496678	0.9353126	1.0399693	1.0813643	0.8883298	0.9163885	0.9715969
(1) Gene expression data for 6 hour													
timepoint are presented as mean ratio of													
treatment/control for all 6 hour predictive													
genes (Table 20).													
(2) Compound and dose abbreviations as													
in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for													
compound-dose group at 72 hr: yes,													
necrosis observed; no, no necrosis													
observed													
(5) Predictive gene (as in Table 20 and as													
included in Table 32)													

Table 34

Table 34

Table 34. Expression Data for 6 Hour																													
Timepoint (1)																													
Compound-Dose (2)	PHEN 20	PHEN 80	PHEN 80	PHEN 80	PEG 5000	PEG 5000	PEG 5000	PEG 5000	PUR 38	PUR 38	PUR 38	PUR 150	PUR 150	PUR 150	PUR 150	PUR 150	PUR 150	PUR 150	PUR 150	PUR 150	PUR 150	PUR 150	PUR 150	PUR 150	PUR 150	PUR 150	PUR 150	PUR 150	
Animal Number (3)	1322	1323	1331	1332	1333	141	142	143	21	22	23	31	32	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	
Liver Toxicity Necrosis Classification (4)	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	
Gene Name (5)	1.1995702	1.2666667	1.1693778	0.9951903	1.1755555	0.8387576	0.9266505	0.904284	0.7132061	0.7535775	0.7163998	1.0073354	1.3828072	1.2740602	1.0868649	0.8874294	0.8734563	0.8105515	0.9668189	1.0033226	1.0688877	0.9791978	0.8390201	0.846146	0.8065902	0.5034371	0.7016926	0.6593569	0.8443131
Gadd153																													
Interferon related developmental regulator																													
IFRD1 (PCA)	0.7158182	0.879222	0.5316183	0.7354487	0.7217255	1.0183065	1.1218348	1	0.9965479	1.3189136	1.3860381	0.9613814	0.8344091	0.8722844	0.7239875	1.0878652	1.7452253	1.2895318	1.5168066	0.817278	0.796863	0.8096367	0.907898	0.7719881	0.8523917	0.9476356	0.7659878	0.9946709	0.8443131
ID-1	1.2866774	1.3141364	1.7983679	1.2837155	1.3552673	0.8880639	0.8481219	0.866928	0.9742351	0.8679341	0.8400168	0.8937391	1.0599697	0.9311806	0.9769619	1.0893327	1.1592891	1.1772097	1.1429492	1.0893308	1.2422513	0.9622701	0.9561014	0.9071662	1.0404802	1.4577765	1.0167514	1.035789	0.8443131
Insulin-like growth factor binding protein 1																													
NIPK	0.9769619	1.0893327	1.1592891	1.1772097	1.1429492	1.0893308	1.2422513	0.9622701	0.9561014	0.9071662	1.0404802	1.4577765	1.0167514	1.035789	0.7239875	1.0878652	1.7452253	1.2895318	1.5168066	0.817278	0.796863	0.8096367	0.907898	0.7719881	0.8523917	0.9476356	0.7659878	0.9946709	0.8443131
Phase-1 RCT-50	0.9504001	1.4580566	1.4430426	1.6234862	1.1987605	1.0434972	0.9314718	1.0071452	0.9689505	1.242203	1.1737882	0.9906365	1.1853511	1.1310492	0.9695335	0.8276978	0.795247	0.7666883	0.9973713	1.0223068	1.0343493	0.9587444	0.8838861	0.6834971	0.8107082	0.9253744	0.9976154	0.898071	0.8443131
Sarcoplasmic reticulum calcium ATPase																													
Phase-1 RCT-207																													
Acetyl-CoA carboxylase	0.8443131	1.1951059	1.2575887	1.1839384	0.9599807	0.9668484	0.9057024	0.7792742	0.7792742	0.703091	0.5538179	0.9261821	0.9477801	0.9320814	0.7682783	0.8751211	0.7093381	1.0590501	1.062408	0.9868784	0.9252375	0.9278464	0.9941245	1.3206025	1.4031829	1.014609	1.0335695	0.9320814	0.8443131
Cathepsin L, sequence 2	1.2381506	1.1980142	1.0164602	1.1812688	1.1516088	1.6093849	1.130862	1.9677271	1.5778209	1.545951	1.6801537	2.8350549	2.757117	2.138561	0.9769619	1.0893327	1.1592891	1.1772097	1.1429492	1.0893308	1.2422513	0.9622701	0.9561014	0.9071662	1.0404802	1.4577765	1.0167514	1.035789	0.8443131
Glucokinase	1.7143363	0.8836666	0.4342005	0.4287781	0.5431609	0.671631	0.7289248	1.0330616	0.6101243	0.6893839	0.50718501	0.5283005	0.7491081	0.6543378	0.9801576	1.5476843	1.5847269	1.9324737	1.4866054	1.1800238	1.0598049	1.0560398	1.3325402	1.2725604	1.594505	1.0782844	1.0782844	1.0782844	1.0782844
Gadd45	0.9095335	0.8276978	0.795247	0.7666883	0.9973713	1.0223068	1.0343493	0.9587444	0.8838861	0.6834971	0.8107082	0.9253744	0.9976154	0.898071	0.8443131	1.1911919	1.0011868	1.063794	1.0823125	0.9851901	1.3593146	1.3733801	1.417047	1.5145717	1.1423458	1.1675475	1.1675475	1.1675475	1.1675475
Phase-1 RCT-16																													
3-beta-hydroxysteroid dehydrogenase (HSD3B1)	1.4742254	1.5543119	1.699762	2.792885	2.4521976	0.8011006	0.8288512	0.8771147	1.0280991	1.1222498	1.1331949	1.4706546	1.7941374	1.2740374	1.0223651	0.8370827	0.6434123	0.8552887	0.7679116	0.8453091	0.7318166	0.8978125	1.1710842	1.0370238	1.0967481	1.0833702	1.0755467	1.0755467	1.0755467
Phase-1 RCT-221																													
Heme oxygenase	0.9914081	1.4128506	1.9575108	2.1398405	2.64749	1.3145466	1.9329306	1.0043232	1.373668	1.0665577	2.917187	1.071748	1.4373444	1.0867287	1.0845207	1.5233209	1.4934033	1.2763558	1.2717852	0.7346615	0.8351604	0.8525147	0.879023	0.9254623	1.0628324	1.1004221	1.1061288	1.1061288	
Cylin dependent Kinase 4	0.98215828	0.9922675	1.606634	1.1915759	1.1472869	0.9045126	0.8141701	0.8602893	1.0412214	0.8812035	0.8645427	1.0478089	0.9401539	1.250124	0.9196063	0.8836666	0.4342005	0.4287781	0.5431609	0.671631	0.7289248	1.0330616	0.6101243	0.6893839	0.50718501	0.5283005	0.7491081	0.6543378	0.9801576
Phase-1 RCT-75	0.9196061	0.9880957	0.6280922	0.9214798	0.9800039	0.8353096	0.7819619	0.9521828	0.8271786	0.8493415	0.9684965	0.7222467	0.653315	0.8674492	0.8655885	0.7154369	0.6947609	0.6660246	0.7472896	1.0605089	1.1622735	1.0422287	0.8443515	0.7016313	0.6037316	0.8245552	0.8060321	0.9151603	0.9151603
Cytochrome P450 1A1	1.2237241	1.1587161	2.5097914	1.8488467	1.0511912	1.1915764	1.070636	1.0971714	0.8667841	0.9067841	0.9544501	0.7735831	1.0740471	1.0114408	1.1911919	1.0011868	1.063794	1.0823125	0.9851901	1.3593146	1.3733801	1.417047	1.5145717	1.1423458	1.1675475	1.1675475	1.1675475	1.1675475	1.1675475
Peroxisomal multifunctional enzyme type II																													
DNA topoisomerase I	0.9989806	0.637692	0.4090469	0.5469732	0.5962006	1.1216801	1.2448267	0.9236388	1.1730897	1.526027	1.8601039	0.7845445	0.6841924	0.8617445	1.202058	0.5352078	1.3538481	0.6586257	0.7128604	1.221897	1.1863109	1.0608697	0.8707502	0.9764838	0.9077843	0.8010594	0.9573495	1.0295125	1.0295125
Focal adhesion kinase (pp125FAK)																													
NGF-inducible anti-proliferative																													
secreted protein (PC3)	0.5273156	0.5948268	0.4412934	0.4905701	0.568941	0.935155	1.3151006	0.9104847	0.79255483	1.2518446	0.8924394	1.0145383	0.9233044	0.8045892	0.9749785	0.9682414	1.2268074	1.2489845	1.2489845	1.2489845	1.2489845	1.2489845	1.2489845	1.2489845	1.2489845	1.2489845	1.2489845	1.2489845	1.2489845
Phase-1 RCT-82	0.9749785	0.9682414	1.2268074	1.2489845	1.2489845	0.9289853	0.9473355	0.9686988	0.9953193	0.9239869	0.8592541	0.8482337	0.8161439	1.0298021	1.2643875	0.5692805	1.0897511	0.3038077	0.4663493	0.4030454	0.3013601	0.4226844	0.9250809	0.759695	0.8350511	1.05446394	0.4571479	0.4571479	0.4571479
Sensescence marker protein-30	1.1264855	1.1810694	1.366257	1.0468396	0.9930644	1.1365287	0.9511741	1.0640042	1.163345	1.1326628	1.0696158	1.0715068	1.1808499	1.0544521	0.801557	1.266311	1.2442491	1.468224	1.3588183	0.9888878	0.9296579	1.0084718	0.8935916	0.838353	0.8893504	0.9308049	0.6867449	1.0154415	1.0154415
Melanoma-associated antigen ME481	0.801557	1.290311	1.2442491	1.468224	1.3588183	0.9888878	0.9296579	1.0084718	0.8935916	0.838353	0.8893504	0.9308049	0.6867449	1.0154415	1.0670235	1.290331	0.9313992	1.3320333	0.8367071	0.7785382	0.8367071	1.0660405	1.335578	0.8396726	1.0393341	0.9811491	0.9435092	0.9435092	0.9435092
Activating transcription factor 3	0.8655885	0.7154369	0.6947609	0.6660246	0.7472896	1.0605089	1.1622735	1.0422287	0.8443515	0.7016313	0.6037316	0.8245552	0.8060321	0.9151603	0.9651384	1.4398825	2.1121007	1.777207	1.3777273	1.3683014	1.1792727	1.0701948	0.62925	0.6491546	0.5004697	0.533056	0.7381671	0.7143131	0.7143131
Zinc finger protein																													
c-myc	1.5508661	1.3181542	1.4044908	0.6993446	0.9411566	0.6432459	1.1716729	0.7621476	0.8192132	0.6518031	0.6800177	0.5105014	0.6832889	0.7677417	1.0328417	1.7181236	1.2340729	1.8780612	1.9226501	1.9226501	1.9226501	1.9226501	1.9226501	1.9226501	1.9226501	1.9226501	1.9226501	1.9226501	1.9226501
Fertilin H-chain	0.9365573	0.9357778	0.7822934	0.834303	0.7850354	1.1328113	0.915528	1.1441749	0.9955719	1.2469379	1.3207508	1.0216105	0.8816564	0.8786927	1.0683875	1.0033633	1.0451742	0.9882843	0.8716877	1.0124098	0.9632288	0.9272094	1.2193669	0.975552	0.8569484	1.5513654	1.5742469	1.3420126	1.3420126
Phase-1 RCT-179	1.0651318	2.3134952	1.634768	2.171104	2.1263123	0.9981898	1.0709243	0.9432314	1.1345271	1.3534527	1.3082931	1.1275568	1.2128607	1.1017044	1.2501523	0.8446797	0.4604164	0.9959073	0.7193275	1.2533381	1.0671562	1.2071607	1.1846032	1.6347252	1.2926433	1.7954997	1.6071215	1.2507344	1.2507344
Phase-1 RCT-15	1.2501523	0.8446797	0.4604164	0.9959073	0.7193275	1.2533381	1.0671562	1.2071607	1.1846032	1.6347252	1.2926433	1.7954997	1.6071215	1.2507344	1.1664841	0.8275436	1.5084747	0.5094874	0.6897191	0.6762102	0.5153954	0.8356118	1.2394506	1.1618223	0.506354	0.8008888	1.1443917	0.3228917	0.3228917
Argininosuccinate lyase	0.9218944	0.8275436	1.5084747	0.5094874	0.6762102	0.5153954	0.8356118	1.2394506	1.1618223	0.50																			

Proliferating cell nuclear antigen gene	1.1285015	1.2494142	1.2121432	0.8818202	1.1517814	1.2454054	1.1725035	1.0515897	0.634904	0.6776711	0.6082113	0.7917055	1.0381975	0.9539039
Integrin beta1	1.0416279	1.4231727	1.6300949	2.2487478	1.6656935	1.0033205	1.1917953	0.9279639	0.7730939	0.8124881	0.7983086	1.0477253	1.1413854	1.1250079
Caspase 6	1.0946655	1.126829	1.0405338	1.0520545	1.203263	1.0329467	0.9580385	0.788857	0.806992	0.806992	0.7584585	1.019763	1.242393	1.2042724
Phase-1 RCT-116	0.8370483	1.4859221	1.1039135	1.6731662	1.8138875	0.6587553	0.708074	0.8875603	1.394354	1.419673	1.0721742	1.4284121	1.1375471	0.9226086
Phase-1 RCT-109	0.8813652	0.9132051	1.1370656	0.9917772	1.1954769	0.8898813	0.7694999	0.8845661	1.532065	1.803887	1.3284392	1.7225769	1.518066	1.3384666
Phase-1 RCT-71	1.0689549	1.0481813	0.9887803	1.0521528	0.9431556	0.987296	1.09808271	0.9960306	0.984204	0.9718869	0.9553304	0.8514019	0.9863825	0.9400395
Elongation factor-1 alpha	1.053152	0.931522	1.4009376	0.6464143	0.8542034	0.9360279	0.9433216	1.0911292	1.3733981	1.4452874	1.452989	0.7454978	0.8677657	1.1781713
Phase-1 RCT-169	0.8884656	1.0351144	0.6997022	0.8865228	0.7300046	0.8222106	1.2680169	0.6867915	0.720013	0.720013	0.6508357	0.7454978	0.8677657	1.1781713
Pyruvate kinase, muscle	1.0347295	1.1922473	1.1538663	1.2490314	1.1450938	1.1946273	0.9618976	1.1942214	1.6356213	1.3879624	1.638046	2.1904655	2.153786	2.1785251
Nucleosome assembly protein	2.8556898	1.4714612	1.021456	1.1074812	1.208362	1.625717	1.770932	1.052492	1.9355768	1.2474529	1.2474529	1.2474529	1.2474529	1.2474529
Phase-1 RCT-127	0.8746264	0.8630269	1.593747	1.0895053	1.2648574	1.1041766	1.0212334	1.087197	1.029411	1.0535955	0.8133273	0.8088764	1.011674	1.011674
Iron-responsive element-binding protein	0.9828642	0.8886303	0.8545156	0.6590506	0.8482193	0.8643937	1.057422	1.082992	1.0539323	1.05317	1.1206524	1.0602475	1.0169863	1.1373384
Phase-1 RCT-72	0.9821956	1.1925652	1.1128335	1.1897893	1.08982	0.9639917	0.9106965	0.8237481	0.8081779	0.8081779	0.8081779	0.8358537	1.0082793	0.9297274
Phase-1 RCT-144	1.1174304	0.9827853	1.165814	1.1553274	1.1185299	0.9038513	0.9301565	0.8136091	1.0663658	0.7956528	0.9034071	1.3248376	1.3309369	1.2203614
Phase-1 RCT-242	0.906266	1.1379157	1.7740561	1.4139427	1.1897812	1.1481904	1.3181925	1.0166258	1.058131	1.091847	0.9930441	0.9440522	1.0720447	1.0424666
17-beta hydroxysteroid dehydrogenase, type 2	0.8886845	1.4235861	1.0183786	1.4620717	1.1201662	2.2176101	1.8636501	1.0475473	2.3882864	1.3749642	1.8946938	1.6440188	2.8838308	1.6008005
Phase-1 RCT-70	0.7110149	0.8538215	1.0882856	1.136257	1.0380331	0.991398	1.0775403	0.9146408	1.1891463	1.0296104	1.0342717	0.9232509	0.9500674	0.9728782
Ribosomal protein L13A	0.9081181	1.2264652	0.9733213	1.2458899	1.5655851	0.8886427	0.8735787	1.7495188	2.3333363	1.8734444	2.3639362	1.7394975	1.6080854	1.6080854
Cytochrome P450 2E1	1.8851967	1.6501358	1.4741321	1.2321445	0.9003852	0.6787164	0.9310749	0.469469	0.8985188	0.8368296	0.8754663	0.8046962	1.3338028	1.0658755
AT-3	1.0689591	0.8618068	1.4425862	0.8794884	0.8734754	1.0436265	1.1171165	1.0085508	1.827029	1.913149	1.1734469	0.9966538	1.0544688	1.0876574
Phase-1 RCT-270	0.9437037	0.6276115	0.3825029	0.4300135	0.5249834	0.8058478	0.9003498	0.836407	0.9493927	0.7833051	1.0178083	0.8309505	0.8742222	0.8742222
Phase-1 RCT-123	0.902706	1.1301395	1.5063019	1.1142502	1.0285412	1.0402423	1.0472378	1.0217979	1.0832218	1.344934	1.581599	1.0141597	1.0704919	1.0927573
Alpha-2-macroglobulin, sequence 2	1.2101953	0.7218121	0.3160206	0.4987905	0.4575886	0.9841508	1.0075958	1.1946173	0.9717218	0.7623529	1.0441408	0.9278002	1.0776229	0.9524019
Matrix metalloproteinase-1	1.090431	1.562952	1.2152635	1.9331468	1.7773359	1.1864791	1.1477245	1.1472094	1.1123015	1.1567077	1.1344668	1.282249	1.2768875	1.1856462
Beta-tubulin, class I	0.5695431	1.153271	1.0983839	1.133395	1.1492376	0.56266	0.5676828	0.6845306	1.31466263	1.4466263	1.298334	1.5714284	1.217792	1.12632
Phase-1 RCT-161	0.918594	1.3384517	1.3786713	1.5315013	1.2478894	0.7341741	0.7539306	0.6867698	0.8951613	1.0139214	0.9247528	0.8414747	1.0606225	0.9530185
14-3-3 zeta	0.9454805	1.4821098	1.4055721	1.282246	1.355797	0.7670581	0.8500257	0.8192508	1.1501281	0.8399084	0.7156639	1.3123472	5.873885	0.9658797
Stem cell factor	1.0385752	0.8941948	0.5495268	0.5056059	0.732731	0.4953291	0.9225018	0.5359781	0.9755836	1.00816	0.5194036	0.6867824	0.5484479	0.5484479
Macrophage inflammatory protein-2 alpha	1.2533404	1.3295642	1.456981	1.7901107	1.3821354	2.942998	1.9584955	1.4132477	0.5719115	0.6779672	0.5192273	0.554804	2.1508055	1.0450137
Thymidylate synthase	1.1756895	1.402874	1.7747816	1.1286302	1.3272288	1.1043297	1.1647047	1.119215	0.8350414	0.7131556	0.5718552	0.6282539	0.7601805	0.7745818
c-Jun	1.0323354	1.3379072	1.183718	1.7598337	1.3914863	0.9158442	0.9021527	1.126949	0.6171758	0.6665443	0.542862	0.8547394	0.8615819	0.7570067
Superoxide dismutase Mn	0.8789546	1.118539	0.941356	1.1316545	1.2891518	1.4026673	1.1485211	1.4382659	0.9251294	1.3578448	1.096616	1.5899603	1.2890095	1.063506
Phase-1 RCT-73	0.9733691	1.240843	0.6823995	1.2640795	1.049681	1.0212553	1.0926237	0.9739215	1.1756834	1.4134628	1.3814272	1.225917	1.0566547	0.9840857
Macrophage inflammatory protein-1 alpha	1.0980508	1.252087	1.3338223	1.1260813	1.1837777	1.2980744	0.9588259	0.7711114	0.7265784	0.7681252	0.8262415	0.8272222	0.7884838	0.707767
Phase-1 RCT-214	0.6219892	0.799197	0.4768786	0.7030253	0.9870843	0.7792628	0.9839865	0.8693917	0.9687756	0.9188413	1.0431243	0.9486495	0.9410788	0.9156682
NADH-cytochrome b5 reductase	0.6694308	0.8826934	0.7491446	0.7002627	0.7156898	0.8676338	0.9995771	1.1023754	0.7839085	0.856091	0.8732762	0.7179046	0.8234981	0.836085
Interleukin-1 beta	1.163902	1.5790772	1.3750653	1.678032	1.6271116	1.2434163	1.1107947	1.2392551	1.090416	1.2391316	1.1766851	1.2994987	1.2920426	1.168491
NADP-dependent isocitrate dehydrogenase, cytosolic	0.8442578	0.7834249	1.101536	0.6220579	0.6937524	0.890878	1.0579951	0.865129	1.1322789	1.0933871	1.232729	1.209089	1.1112541	1.0987419
Phase-1 RCT-289	1.0415077	0.863539	0.7777567	0.7249048	0.7192893	0.9498252	1.0496366	0.9434148	0.8331885	0.9777866	0.9990731	0.9006771	0.8395912	0.8395912
Glutamine synthetase	1.385546	0.7741242	0.5056679	0.6727383	0.5808148	1.0054841	1.0304278	1.1833715	1.2668344	1.3885561	1.2699624	1.1902468	1.1897073	1.1165926
Phase-1 RCT-182	1.3869008	0.6491612	0.4470218	0.5281956	0.4433547	1.142516	1.1821607	1.1999097	1.0811398	1.2679977	1.2698823	1.0042474	1.1507543	1.0867915
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.0518057	0.6564333	0.6710243	0.6205088	0.6019797	1.1180228	1.0848289	0.9750081	1.1630497	0.7036651	1.1223367	1.3116328	1.24775	1.1625859
Extracellular-signal-regulated kinase 1	1.2812947	1.0958047	0.9553338	0.9282823	0.874153	0.9303685	0.8993262	1.2324685	0.9757874	0.6125312	0.5081632	0.3046573	0.3350371	0.3205815
Enerlin	0.8483466	0.9675309	1.2920823	0.9046095	1.0784153	0.8043651	0.8630365	1.0930757	1.2324685	0.9757874	0.6125312	0.5081632	0.3350371	0.3205815
Phase-1 RCT-78	1.0234376	1.1967646	0.9696712	1.3268954	1.1507969	1.0116206	1.0923263	0.8948145	1.1908568	1.050119	1.0077131	1.0449177	1.0044048	1.0044048
Phase-1 RCT-212	0.8073475	0.9550391	0.9620868	0.9318597	0.818821	0.8807135	0.8014727	0.9098932	0.9188299	0.994127	0.8484052	1.0466726	0.9406251	0.8525462
Phase-1 RCT-168	1.1742411	0.6424666	1.0867578	0.7276874	1.0939989	0.9983012	1.0997919	1.4144046	0.9144046	0.9144046	0.9144046	0.9144046	0.9144046	0.9144046
Lysyl hydroxylase	1.3614123	0.7748991	0.732631	0.6746439	0.5621877	0.9632765	1.0545431	1.0035286	1.231724	1.5259194	1.3949589	1.2215214	1.2322268	1.1730435
Phase-1 RCT-35	1.2611818	0.8335255	0.5310882	0.9505026	1.1775051	0.6549422	0.5763462	0.9243829	0.9101275	0.8160577	0.9212149	1.0833316	0.9988484	0.9518844

MHC class I antigen RT1.A1(f) alpha-chain	0.7045261	1.2992707	1.11526	1.0887433	0.7848824	0.6923142	0.8928435	1.0882273	1.6476047	1.2695124	1.6141987	1.2436877	1.0448114
Phase-1 RCT-40	0.9037123	0.7236282	0.454836	0.6781182	1.1825911	1.1866967	0.921732	0.9916234	1.097505	1.2539204	0.8926131	0.8909886	0.8456137
Cyclin G	1.0889081	1.3929912	1.7177427	1.5048895	1.2799363	0.7964356	1.0974002	0.7445958	0.7131558	0.9847849	1.6917267	2.2594082	2.0401466
Peroxisome proliferator activated receptor gamma	1.1782205	1.2805393	1.9910777	0.8905022	1.1057912	1.2795272	1.2582737	0.7031571	0.6798428	0.6014168	0.5681214	0.7162839	0.6415271
Phase-1 RCT-280	0.8569488	0.7204538	0.4489199	0.7083872	1.0215383	1.305788	1.1028528	0.9702324	1.0836456	1.1562618	0.9759067	0.9970338	0.8945649
D-dopachrome tautomerase	1.267664	0.6231496	1.9025705	1.5083064	0.9767114	0.7560414	0.9334471	1.2568195	1.3063292	1.2820061	1.3081354	1.3578203	1.1388144
Phase-1 RCT-287	0.8735367	0.8285056	0.9576961	0.9248911	0.9330146	0.8642831	1.0928617	0.7506948	1.2428519	1.2898679	1.4175856	1.0803054	1.1059291
Phase-1 RCT-119	1.1139419	0.8021287	0.45551	1.0477946	0.9370388	0.8772182	1.2766301	0.6911626	0.6971992	0.8895224	0.4827038	0.5414503	0.6933311
Thioredoxin-1 (Trx1)	0.839216	0.984234	0.8256128	0.8813368	0.9316594	1.1696807	1.1778405	1.0454142	1.1316029	1.6981606	1.3663913	1.6787603	1.3549397
Phase-1 RCT-225	0.5634041	0.9388137	1.0543327	0.8223462	0.9357133	0.8076081	0.6826361	0.5777342	0.7149574	0.7150748	0.5892281	0.5977615	0.5246987
Protein kinase C alpha	0.9325432	0.9362094	1.1870774	0.67207	0.8010476	0.8571181	1.0784468	1.0536807	0.7258531	0.8633379	0.8054474	1.0566401	1.0284588
Phase-1 RCT-87	0.972421	0.949874	0.8755049	0.8561884	0.849228	0.9626322	1.1180357	0.995598	0.9266088	0.9199709	0.9406554	0.938181	0.9978488
Phase-1 RCT-59	1.024917	0.9174081	1.0365509	1.0070639	1.0950058	1.0894624	1.0034807	1.1143671	1.1807536	1.3827777	1.2706878	1.1089526	1.0547501
Cdk-binding protein	0.9477621	0.6800364	0.8879969	0.5242738	0.6306124	1.267755	1.3542994	0.9715494	1.2728775	1.2742928	1.4233519	1.0327133	1.09807597
Phase-1 RCT-204	0.9619961	1.1748432	1.6099974	1.1732575	0.9735441	0.9551877	1.019032	0.9405748	0.8622283	1.1155046	1.1442014	1.1805742	1.189028
Camitine palmitoyl-CoA transferase	1.0591898	1.1588184	1.4112753	1.494711	1.1864104	1.2322675	1.0434328	1.0819365	0.8728707	0.8511443	0.715627	0.8950231	0.8905714
8-oxoguanine DNA glycosylase	0.9259135	1.2338805	1.3476398	1.0543523	1.1158218	1.1057484	0.9160441	1.0741043	0.7874155	0.6968551	0.6841674	0.8569114	0.9105654
H-rev107	1.0113721	1.044305	1.6344833	1.027987	1.0393873	1.0143219	0.9367648	0.9691979	1.2037589	1.2787749	1.0968711	1.2116033	1.1415013
Preproalbumin	0.949587	3.6556916	2.12044	3.6879866	3.1822946	0.9067547	1.0171164	0.9330527	1.0847217	1.2782254	1.0612347	0.9522716	0.816297
Phase-1 RCT-177	0.9296984	1.2436886	0.6319693	1.1920685	1.0476997	0.9754508	0.9712356	0.9831506	1.1217731	1.3596256	0.97897	0.8885997	0.8830209
Phase-1 RCT-110	0.9645275	0.9295482	1.1417056	0.9694704	0.7935793	1.0572066	0.9150135	0.9577065	1.154175	1.4409002	1.3403282	1.1795139	1.1601756
Phase-1 RCT-227	1.1723293	1.2510451	1.4053389	1.1711311	1.2820278	1.030898	1.3187762	0.9556312	1.0106924	1.2744149	1.1949646	1.0286623	1.2185447
Neuropeptide Y	1.0453558	0.6774383	0.6381983	0.7242649	0.5965275	1.030898	1.3187762	0.9556312	1.0106924	1.2744149	1.1949646	1.0286623	1.2185447
Phase-1 RCT-277	1.2076888	1.0210714	0.3743128	0.4424869	0.3740071	0.9855187	1.4141408	1.205961	1.2383226	0.8787285	1.5964065	1.5028185	1.328338
Phase-1 RCT-229	1.0267891	1.3200926	1.1809031	1.3371431	1.1407516	0.9758002	0.9413409	0.9487422	0.7068874	1.0495753	0.982382	0.8575376	1.0448866
Phase-1 RCT-34	1.0651885	1.1086041	0.9133645	1.2194682	1.2850326	0.8911597	0.8837652	1.1890522	1.1837888	1.5438939	1.4535359	1.3084046	1.2930677
Choline kinase	1.0726846	1.063521	1.0356432	0.9821918	0.9167244	0.7504605	0.8815052	0.7710573	0.7228806	0.8696287	0.6522103	0.5527103	0.6308965
Phase-1 RCT-20	1.0848695	1.5617558	1.5191047	1.9559133	1.7658793	0.9735481	0.9009562	1.0165304	0.9496807	1.1574316	1.1306448	0.9617003	1.0999641
Phase-1 RCT-248	0.9098299	0.9321331	1.6620961	1.1077862	1.1128133	0.9659903	0.8866536	0.9628636	1.1948321	1.2771612	1.2190549	1.2454714	1.1927415
(1) Gene expression data for 6 hour													
limpoint are presented as mean ratio of													
treatment/control for all 6 hour predictive													
genes (Table 20).													
(2) Compound and dose abbreviations as													
in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for													
compound-dose group at 72 h: yes,													
necrosis observed; no, no necrosis													
observed													
(5) Predictive gene (as in Table 20 and as													
included in Table 32)													

Table 34

Table 34. Expression Data for 6 Hour Timepoint (1)																				
Compound-Dose (2)	Animal Number (3)	Liver Toxicity Necrosis Classification (4)	Gene Name (5)	QUIN 25	QUIN 25	QUIN 100	QUIN 100	QUIN 100	QUIN 100	STRZ 20	STRZ 20	STRZ 20	STRZ 20	STRZ 20	STRZ 75	STRZ 75	STRZ 75	TAM 50	TAM 50	TAM 50
2541	2542	2543	2541	2542	2543	2551	2552	2553	1721	1722	1723	1731	1732	1733	1441	1442	no	no	no	no
0.8365992	0.8289222	1.1091281	0.9515839	1.0174003	0.8859367	0.9536188	1.0737689	1.1768455	0.9160689	0.9364167	0.9432371	1.0812793	1.5739089							
1.031074	0.9722404	1.1770204	1.024626	1.0792588	0.9846891	0.7433153	0.8627251	0.7559729	0.8017629	0.9494509	0.9266053	1.0711445	0.9737964							
1.0331266	1.082014	1.0738368	0.9660215	1.0264213	1.0321697	1.3289592	1.1216054	1.153467	1.8172499	1.3065882	1.1098682	1.0097964	1.27443							
1.1078073	0.9879481	1.5970607	0.9872246	0.88195	0.739169	1.0312055	1.1805946	1.066333	0.9161218	1.0492432	1.1368207	1.7345412	0.8906694							
1.2242166	1.065608	1.1189375	1.0729123	1.1398034	0.9694778	1.2761025	0.9979778	1.2532698	1.2405387	1.2636437	1.1432594	1.2778863	1.2165554							
1.0636328	1.0089976	1.2742422	1.1717432	1.0444403	1.0493222	1.0014558	0.8421992	1.5487115	1.3775797	0.9643315	0.8075433	1.0551274	1.0340571							
0.8214938	0.8958171	1.0185363	0.7674764	0.9852355	0.8174768	0.7976661	1.0155424	0.8099127	0.8746518	0.8632819	0.8709957	1.1319916	1.4589427							
1.1395346	1.1398465	1.2109659	1.2883872	1.136509	1.2409686	1.1293254	0.954851	1.4967248	3.1272432	1.0708875	0.8985488	1.0309031	1.207655							
0.9750239	1.103459	1.1249943	1.0196245	0.9834673	0.9980653	1.1305263	1.1667772	1.1242981	1.8347702	1.038706	1.1191038	1.4631745	1.5392027							
0.9516382	0.8371817	3.0129354	0.9998764	0.9907018	0.9986794	0.9201081	0.8403436	0.803058	0.8432338	0.9405202	1.0811574	0.8993139	0.8327028							
0.9188528	1.2356988	0.9028722	0.940932	1.0109477	0.9624651	1.0996337	1.2242027	1.1119636	1.152386	0.965961	1.0467372	1.090344	0.800186							
1.4734133	1.017431	1.9605625	1.3787202	1.2384981	1.1150541	1.3240062	1.231854	2.237655	1.4566001	1.0599111	0.9709264	1.0833299								
Phase-1 RCT-75	0.984735	1.016194	0.7982401	1.160252	1.0325493	0.9042594	1.840235	1.39018	1.5763934	1.3295559	1.4511452	1.621822	1.164027	1.1208055						
Phase-1 RCT-85	1.094776	0.921474	1.2526407	1.1283768	1.0869833	1.0470572	0.7936738	0.724393	0.8753935	0.6071625	0.8283435	0.6847531	0.9990615	1.028141						
Cytokrome P450 1A1	1.0427421	0.9674654	1.0979786	1.027558	0.8914278	0.8375758	0.9415546	0.8510814	0.9793038	0.793359	1.159532	0.7461191	1.2947807	1.0412688						
3-beta-hydroxysteroid dehydrogenase (HSD3B1)	0.9914078	1.1018163	0.9779786	1.0196245	0.9834673	0.9980653	1.1305263	1.1667772	1.1242981	1.8347702	1.038706	1.1191038	1.4631745	1.5392027						
Phase-1 RCT-221	0.9750239	1.103459	1.1249943	1.0196245	0.9834673	0.9980653	1.1305263	1.1667772	1.1242981	1.8347702	1.038706	1.1191038	1.4631745	1.5392027						
Heme oxygenase	0.9516382	0.8371817	3.0129354	0.9998764	0.9907018	0.9986794	0.9201081	0.8403436	0.803058	0.8432338	0.9405202	1.0811574	0.8993139	0.8327028						
Cyclin dependent Kinase 4	0.9188528	1.2356988	0.9028722	0.940932	1.0109477	0.9624651	1.0996337	1.2242027	1.1119636	1.152386	0.965961	1.0467372	1.090344	0.800186						
Phase-1 RCT-75	1.4734133	1.017431	1.9605625	1.3787202	1.2384981	1.1150541	1.3240062	1.231854	2.237655	1.4566001	1.0599111	0.9709264	1.0833299							
Phase-1 RCT-85	0.984735	1.016194	0.7982401	1.160252	1.0325493	0.9042594	1.840235	1.39018	1.5763934	1.3295559	1.4511452	1.621822	1.164027	1.1208055						
Cytokrome P450 1A1	1.094776	0.921474	1.2526407	1.1283768	1.0869833	1.0470572	0.7936738	0.724393	0.8753935	0.6071625	0.8283435	0.6847531	0.9990615	1.028141						
Peroxisomal multifunctional enzyme type II	1.0427421	0.9674654	1.0979786	1.027558	0.8914278	0.8375758	0.9415546	0.8510814	0.9793038	0.793359	1.159532	0.7461191	1.2947807	1.0412688						
DNA topoisomerase I	1.0787268	1.0505832	0.8842874	0.9230731	0.9422285	0.9549543	1.2000835	1.2765238	1.2402827	1.0497079	1.700979	1.5461411	0.9999176	0.9293192						
Focal adhesion kinase (pp125FAK)	0.7656518	0.8416397	0.8466767	0.9307935	1.0130855	0.938291	1.0344342	1.0377209	0.9506957	0.9657524	1.1319581	1.1731496	1.137121	0.9085392						
NGF-inducible anti-proliferative putative secreted protein (PC3)	0.9549242	0.9735684	1.5041813	1.0836233	1.0937781	1.049512	0.8960605	0.8808481	0.8968087	0.972373	0.9002278	0.8614476	0.955641	0.9100221						
Phase-1 RCT-82	0.8378341	0.798496	0.7538254	0.7000711	0.885276	0.8201869	1.0825168	1.0194911	1.2839846	1.3568833	1.0795976	0.9261039	0.7677426	0.7673935						
Senescence marker protein-30	1.0115731	0.9684413	0.9680887	1.0203491	0.9578578	0.9739674	0.9739674	0.9739674	0.9739674	0.9739674	0.9739674	0.9739674	0.9739674	0.9739674						
Melanoma-associated antigen ME491	0.8939147	0.9234387	1.1317861	1.0217636	1.0110197	0.737323	1.1817913	1.0874684	1.0837638	0.960524	1.130692	0.9930396	0.9105045	1.1453857						
Activating transcription factor 3	1.4913948	1.4384993	1.2527953	1.381473	1.3015945	1.220127	1.0323893	0.8574825	1.2900977	0.7889586	0.7648174	0.7634301	1.1931349	1.270817						
Tryptophan hydroxylase	0.9619646	0.980993	0.8467742	1.0015317	1.0524276	0.8965089	0.8737892	0.9984554	0.928839	1.0020759	1.0855097	1.1734548	0.8443174	0.7492142						
Zinc finger protein	1.104406	1.095024	1.4057719	1.1470853	1.1203113	1.0748428	0.9613103	0.8400785	1.4572549	0.8137144	0.8862095	1.0151678	0.875479							
c-myc	1.0717872	0.9410529	1.4565594	1.113026	1.1461422	1.7793967	0.7935607	0.844269	1.0434324	0.9041742	0.8724206	1.07673276	1.2086236	1.6091957						
Cholesterol 7-alpha-hydroxylase (P450 VII)	1.0538087	1.1232399	1.0750283	1.8360767	1.0696481	0.8505349	0.7442326	1.8007164	0.9179509	0.889337	0.7751555	1.2687346	1.6810906							
Ferritin H-chain	0.913995	0.7783886	0.7563036	0.8323475	0.7851379	0.8347074	1.0425884	1.4004693	0.8548562	1.3995175	1.1566914	1.2737038	0.9776546							
Phase-1 RCT-197	0.895591	0.9750084	1.3339888	0.8430979	0.9143968	1.07166352	1.4878683	1.2378111	1.5079689	2.5628688	1.0287683	0.929102	1.0487497	1.1231748						
Phase-1 RCT-179	1.0085516	1.1817733	1.3298133	1.076124	1.3230917	1.172107	1.0395113	1.075454	1.170454	1.291223	1.2200727	1.0791081	0.9745325	0.8465593						
Phase-1 RCT-15	1.1079892	1.0837233	1.6120568	1.0929176	1.0746158	1.1567411	1.3743663	1.2449303	1.5794407	1.5696763	1.3020574	1.5605807	0.9676531	0.7425763						
Argininosuccinate lyase	1.4631919	1.4137486	2.581432	1.794231	1.632306	2.0624561	1.4597362	1.6605521	1.6711084	4.266252	1.8461033	1.825208	0.9849393	1.2567735						
Phase-1 RCT-49	0.8667875	1.0354266	1.6194367	1.1451591	1.2206876	1.2807841	0.9823582	0.9213126	1.3368956	0.667994	1.9700708	0.8558639	1.0637684	1.2737407						
C-acidic actin domain III	1.23965	0.2966639	0.5571008	0.2518956	0.3876853	0.9823582	0.9823582	0.9823582	0.9823582	0.9823582	0.9823582	0.9823582	0.9823582	0.9823582						

Proliferating cell nuclear antigen gene	1.0279797	0.9237141	1.3858143	1.0113871	1.047991	1.0082754	0.8578507	0.8807677	0.9682833	1.0041722	0.8418013	0.7328724	1.0263379	1.8752729
Integrin beta1	1.085354	1.0687553	1.8026065	1.0774226	1.0116153	0.9653761	1.0033077	1.1413392	0.9234103	1.0556856	0.8190725	0.8903053	1.3159003	1.2857907
Caspase 6	0.9021747	1.0317882	1.178977	0.9176208	0.8808754	0.9471948	1.0356377	1.2187108	1.0561849	1.2821721	0.8734382	1.0541339	1.1723139	1.3769325
Phase-1 RCT-116	0.9547042	0.8843122	0.9255285	0.9102327	0.8723544	0.9200084	2.5868313	1.5087525	1.6781765	1.4246353	1.8511719	1.7373319	0.9943922	0.8319395
Phase-1 RCT-109	0.97271	1.0947076	1.2864263	1.0713001	1.1132206	1.1474179	0.9519694	1.157377	1.0343815	1.5914884	1.1699181	1.0075294	0.9255508	1.046274
Phase-1 RCT-71	0.8877336	0.8090476	0.982504	1.0523517	0.951045	1.035148	1.1118972	1.1302744	1.2786307	0.9923076	1.0060652	1.1564497	0.9760051	0.8613875
Elongation factor-1 alpha	0.6694363	0.896957	1.260277	0.7227552	0.8398997	0.8872455	1.026789	1.2483238	1.0577475	1.248002	1.609456	1.1985648	0.8827937	0.7759748
Phase-1 RCT-169	1.0461854	0.8982772	0.9173954	0.8910572	0.97186046	0.9764146	1.0509863	0.8830833	0.973314	0.6237474	0.6729012	0.7920311	1.1518811	1.1356924
Pyruvate kinase, muscle	1.0025909	0.9731378	1.4452989	1.0486223	1.1726681	1.1726681	1.1208653	1.1340833	1.1304378	0.9307878	0.7278348	1.0582428	0.8467429	1.0628912
Nucleosome assembly protein	0.9026749	1.121321	0.5443574	0.5778071	0.6209802	1.3077387	1.0815134	0.9366222	1.0356502	0.8845083	0.989705	1.1036022	0.8301776	1.2256218
Phase-1 RCT-127	1.0669646	0.7665519	1.308295	1.2098949	1.0791302	1.112558	0.9420408	0.9228556	1.0349848	1.503476	1.0240353	0.9162713	1.0824753	1.273762
Iron-responsive element-binding protein	1.0171851	1.0931163	1.6099759	1.1853861	1.0718838	1.086173	1.1183598	1.2278448	1.0449297	0.8899963	1.7254508	1.3025224	0.9084047	1.0185213
Phase-1 RCT-72	1.0119543	0.9829904	0.4851012	1.0945181	0.6444894	0.674148	0.964085	0.8637832	0.9814218	0.8841643	0.7566846	0.8560301	1.0858915	1.1128669
Phase-1 RCT-144	1.0003207	1.071875	1.529523	1.1527625	1.3151917	1.2591122	0.8401791	1	1.232107	1.8422887	1.1571612	0.8360657	1.0359	1.1833651
Phase-1 RCT-242	1.0685512	0.9257303	1.5785475	1.1038216	1.0927283	1.0863065	0.8956102	0.747821	1.3343728	1.5025367	0.9211109	0.7305669	1.3234891	1.7899241
17-beta hydroxysteroid dehydrogenase, type 2	0.981532	1.1265334	0.3681477	0.4599655	0.5136915	1.5952554	0.9851646	1.141976	1.3813183	0.3960133	0.9441239	1.5162907	0.821476	1.2831832
Phase-1 RCT-70	1.5410239	1.1553749	0.9686294	1.6141089	1.4708594	1.1785955	1.1221439	1.0750538	1.0900684	1.0416764	1.0039894	0.8851922	0.9657338	0.8280822
Ribosomal protein L13A	1.0798548	1.1182297	1.2794975	1.1625522	1.141447	1.1276727	0.8722033	1.2723142	1.2403827	1.82943	1.1495802	1.2551616	1.0172838	0.8620865
Cytochrome P450 2E1	0.9380583	1.0358602	0.8484237	1.105311	1.090721	1.0681098	0.6189933	0.7333723	0.8871392	0.708752	0.885281	0.6511009	0.5719594	0.8444408
AT-3	0.8638243	0.9531363	0.9970716	0.9087637	1.5180817	0.9012937	0.9033825	0.8373443	0.9056959	0.9913174	0.939988	0.8855007	0.9905794	0.9608445
Phase-1 RCT-270	0.9628648	0.8798907	0.4541825	0.7490899	0.6902649	0.8708327	1.1947669	1.2054355	0.8441143	0.763102	1.2004589	1.6963117	0.9518514	0.9581122
Phase-1 RCT-123	1.0666302	1.0512145	1.13857	1.0830073	1.089916	1.102237	0.8787104	0.9229906	0.8862519	0.8503408	0.9938705	0.86371	0.9537707	0.8687439
Alpha-2-macroglobulin, sequence 2	0.8252758	0.8752598	1.2112572	0.9450463	0.8570826	0.8717048	0.92968	0.8479917	1.0496235	1.7544894	1.2053983	1.1606868	1.0779585	0.9984705
Mitox metalloproteinase-1	0.8307637	0.7999087	0.7917618	0.7988643	0.7948874	0.9312564	0.923296	1.4198823	1.0354248	1.5808303	1.2799987	1.3507673	0.8165948	0.7618056
Beta-tubulin, class I	1.276248	1.1943134	0.871012	1.24872	0.9432882	0.8042755	1.5540282	1.293969	1.2116205	1.8491514	1.487107	1.0653915	0.9278938	0.8028044
Phase-1 RCT-161	1.0479895	0.9789994	0.9154271	0.9102461	0.9258651	0.9834871	1.1017041	0.7404725	0.8568369	0.8832569	1.0839947	1.02087	0.8813285	0.8723533
14-3-3 zeta	1.1428983	1.1011965	0.9506994	1.2807837	1.1686954	1.0333027	0.9558697	1.2764328	1.7379151	1.1966808	0.98484	1.0300121	1.0258563	1.0258563
Stem cell factor	0.8031972	1.0344145	0.5544267	0.7409197	0.6971939	0.7673388	1.0957198	1.196071	1.0580169	0.4399016	0.8890051	1.2871227	0.9191636	0.9517368
Macrophage inflammatory protein-2 alpha	0.9289722	0.8820543	1.5718418	0.8571358	0.9831936	1.1350106	1.0051125	0.9721848	1.6220434	0.9330153	0.8148239	0.8873224	2.3272166	1.7307833
Thymidylate synthase	0.8919495	1.0591632	0.977337	0.9518038	1.1447592	1.040283	0.9603848	1.0069455	0.9423463	0.8863912	0.8430626	0.8262504	0.8203632	1.0684782
c-Jun	0.8860422	0.9228222	1.2308091	1.1535759	1.0465816	1.2275763	1.2747381	1.16242	2.3929214	1.1900374	1.4842601	1.8177685	1.288165	1.5384387
Superoxide dismutase Mn	1.008013	1.1039717	3.764806	1.2279646	1.1624882	1.0292707	1.2180558	1.2905015	1.3027042	1.2103195	1.2329135	1.4635897	0.991625	1.5288167
Phase-1 RCT-73	1.0291015	0.9650638	0.8452828	0.9601879	1.0076854	0.9669374	1.0728621	1.018711	1.0207121	0.8857782	1.1207231	0.9580408	0.967236	0.87017
Macrophage inflammatory protein-1 alpha	1.0617851	1.0436962	1.1756082	1.0974263	1.1763867	1.0912257	1.0375134	0.853749	1.021516	0.7008354	0.6948373	0.7732546	1.0142543	1.7530877
Phase-1 RCT-214	1.1363833	1.0364236	0.671721	0.9653657	1.0425295	1.0555546	1.2341691	0.8972353	1.0452962	0.6276729	0.915686	0.9189161	0.8379453	0.8381688
NADH-cytochrome b5 reductase	1.0764203	0.8795861	0.6485919	0.9086751	0.8445975	0.8003032	1.0803512	1.1936305	1.0678834	1.0838271	1.2408534	1.4358691	0.7777835	0.8633484
Interleukin-1 beta	0.9075565	0.8628155	0.878374	0.8918362	0.8959801	1.000017	1.1206225	1.2247337	0.980786	1.0955127	0.912331	1.0534362	0.788668	0.723852
NADP-dependent isocitrate dehydrogenase, cytosolic	1.0648009	1.1678219	0.6985109	0.9786804	0.9318506	0.8092628	0.9009602	0.8780353	0.966067	0.9328791	0.9244144	0.8056212	0.8415794	0.7889218
Phase-1 RCT-289	1.0372615	1.039138	0.7344763	0.9835274	0.8322235	0.9290679	0.8805066	0.8883271	0.9851575	0.9803476	1.0281278	0.8742168	0.8606963	0.7975212
Glutamine synthetase	0.863605	0.9052671	0.8548583	0.9285546	0.7997857	1.9257684	1.0956939	1.4409302	1.3269819	1.1483455	1.3835598	1.4972578	0.9178347	1.302443
Phase-1 RCT-182	0.9210967	0.8550212	0.5618068	0.8634859	0.6328014	0.7586448	0.9424531	1.0593578	0.9943004	0.8284189	1.0955104	1.2568598	0.9519564	0.9036076
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.9900309	1.095867	1.4557115	1.0884187	1.1089792	1.2329908	0.938791	0.8755921	0.9588578	1.0303826	0.8045185	0.8296448	1.0137633	0.9944734
Extracellular-signal-regulated kinase 1	0.8177642	1.2191478	0.3520504	0.5852303	0.7375069	0.4745532	0.9784476	0.9172336	1.096869	0.9084079	1.1668744	1.4342372	0.9839463	1.0247432
Ererin	1.1757071	1.1225569	0.7269309	1.025147	1.1775453	1.1314554	0.9294032	0.9539074	1.1304243	1.2213633	1.104082	1.0047426	0.9526151	1.0068795
Phase-1 RCT-78	0.7687822	0.930212	0.7710151	0.7003684	0.7711629	0.8144989	1.142771	1.1278096	0.9347562	1.0484998	1.1015949	1.3498848	1.0371661	0.9282566
Phase-1 RCT-212	0.8273309	0.8552477	0.997309	0.8005636	0.9675283	0.9695514	0.9827941	0.9522099	1.0293903	1.0131068	0.8411048	0.9560429	0.9842072	1.1934183
Phase-1 RCT-168	1.816531	0.8805174	0.8071098	0.823652	0.8864734	1.0231972	1.0824039	0.9763285	0.7639285	0.7699569	1.101075	1.1696348	0.8539112	1.012844
Lysyl hydroxylase	0.8935273	0.9140413	0.9552765	0.8748782	0.8614495	1.4383897	1.1423059	1.1107872	1.191205	1.2542695	1.1558717	1.0568326	1.0550195	1.2478005
Phase-1 RCT-55	1.0677035	0.9235227	1.8468018	1.3583582	1.1758628	1.0204117	0.9707851	0.9513087	0.9224072	0.713701	0.8143131	0.8748555	0.7872616	0.8144665

MHC class I antigen RT1.A1(0) alpha-chain	1.3959038	0.9441919	1.199634	1.4748625	1.2825601	1.1630158	2.5953853	1.7178133	1.8846669	2.0844798	2.0841513	1.9905267	1.1914444	1.0610402
Phase-1 RCT-40	0.9116669	0.7892057	0.4999414	0.8213936	0.7035756	0.5676172	1.2832835	0.9140392	0.9514493	0.7298446	1.1900665	1.2965161	0.8948373	0.7980994
Cyclin G	1.0510112	1.0155321	1.515248	1.0035025	1.1046528	1.1842393	1.911375	1.448197	2.3561883	2.9436986	0.8907791	1.1202722	1.0352434	1.7809172
Peroxisome proliferator activated receptor gamma	2.198169	0.9721372	0.9115514	0.8547841	1.1268333	1.005257	0.8751648	0.875438	1.0241729	0.6734084	0.7730314	0.8243588	0.7773308	0.8687829
Phase-1 RCT-280	1.0679547	1.0386404	0.789385	0.9883741	1.1255198	1.1483499	1.0559148	0.9063671	1.171397	0.8746454	0.8242911	0.9050973	0.9328898	0.7183339
O-dopachrome tautomerase	0.7993314	0.8184301	0.4081545	0.8874857	0.5904214	0.5719094	1.1111488	1.388199	1.0215019	1.4876618	1.395042	1.4402454	0.7842439	0.7951776
Phase-1 RCT-287	0.8157653	0.9213677	0.8328461	0.8108144	0.8417811	0.8704904	1.0588764	1.0029128	0.9802625	0.9326011	1.2809837	1.2091691	0.8809412	0.9437203
Phase-1 RCT-119	1.0210013	0.9362307	0.8537554	0.9551758	0.9582984	0.8379306	0.6758112	0.5912408	0.8081309	0.6781581	1.124735	2.5603762	1.2905768	1.0359875
Thioredoxin-1 (Trx1)	0.9289302	0.8248388	0.9475777	0.9083909	0.8447252	0.8506231	0.8776722	0.9818854	0.9173943	1.1061931	1.0020434	1.1464458	1.0211014	1.2433465
Phase-1 RCT-225	0.8234596	0.8645654	1.3236755	0.6038162	0.8950852	0.6956808	2.0690262	1.0791999	1.6913116	1.5733751	1.0460331	0.8866406	0.9475759	0.9814334
Protein kinase C alpha	0.8521603	1.0295439	0.8930458	0.9142309	0.9208859	0.9357089	0.8531994	0.9595003	0.9461255	0.9542564	0.8616415	0.8620582	0.9788878	1.1645181
Phase-1 RCT-87	0.9660085	0.8717729	0.8197335	0.9459957	0.9455392	0.87264	0.9880917	0.9916799	1.0079222	0.9778675	0.9168944	0.9378612	0.8750016	0.8380058
Phase-1 RCT-59	1.063215	1.0878072	1.1595917	1.0817872	1.0340437	1.1109334	1.0723086	0.8672726	1.5311468	3.6316793	0.8235968	0.7034488	1.2831093	0.9943827
Cab-binding protein	0.8018779	0.8555282	1.045143	0.861671	1.2936996	0.9341326	0.8494085	0.757324	0.9623228	1.2868581	1.1265236	1.0920818	0.9673375	0.8572375
Phase-1 RCT-204	1.104904	1.0693393	1.0495746	1.2675121	1.1946778	1.241528	1.0332555	1.0999635	0.9623228	1.2868581	1.1265236	1.0920818	0.9673375	0.8572375
Camitine palmitoyl-CoA transferase	1.1108785	1.2050971	1.5716841	1.08616	1.5232165	1.6343318	1.1482789	0.9195423	1.4931287	1.2275239	1.0454147	0.8815508	0.9117487	1.2284262
8-oxoguanine DNA glycosylase	1.0348185	1.0606564	1.9593476	1.042011	1.1352636	1.1337317	1.0243404	0.9382048	0.9582622	0.9432707	0.8827562	0.8460995	0.997159	1.1055218
H-rev107	1.0823803	1.006325	1.203018	1.1564531	1.1619513	1.0987496	1.2545792	0.9610689	1.2981279	1.301318	1.3040833	1.1630982	0.922419	0.6820168
Preproalbumin	1.4256947	1.0851679	0.9119348	0.9170877	0.9119481	1.0372233	0.8675136	1.1097714	1.0483027	0.9069247	1.2175887	1.2405002	0.9616411	0.8026573
Phase-1 RCT-177	0.9769375	0.8831378	0.6110009	0.9279498	1.0051912	0.8675136	1.287495	1.1097714	1.0483027	0.9069247	1.2175887	1.2405002	0.9616411	0.8026573
Phase-1 RCT-110	0.9416219	0.8235636	0.9518443	1.0017676	0.9444591	0.9300977	0.9094245	0.8324231	0.9369552	0.7669	0.8053718	1.0327357	0.9355939	1.6885962
Phase-1 RCT-227	1.0005257	0.9662607	0.8116308	0.6630796	0.7478554	0.797029	0.9695783	1.2347263	0.9367322	1.1006217	1.5316816	1.5598246	1.0327357	0.9355939
Neuropeptide Y	1.0690722	0.9926771	1.0399087	1.1013191	0.9941952	0.955124	0.8459478	0.8240988	0.9039084	0.8648127	0.7982968	0.8984295	1.0719379	0.9919192
Phase-1 RCT-277	1.0591295	1.0165619	0.5802853	0.9690122	1.3698503	0.9765036	0.8593526	1.0315834	1.2350388	1.1656072	1.0458783	0.9077155	0.5746481	0.4152244
Phase-1 RCT-229	0.8854107	0.9401656	0.8787061	0.8490628	0.8598894	0.917158	0.8808166	0.8551132	0.8686208	0.7659316	0.8087411	0.8570358	1.0255709	1.0013528
Phase-1 RCT-34	1.0768846	1.0713792	0.6672249	0.9171392	0.8265589	0.8609718	1.3573017	1.1473901	0.9467121	1.1989974	1.292775	1.1435173	0.8790201	1.1033767
Choline kinase	0.9044166	0.8752269	1.042818	1.0182693	0.9233241	0.9211072	1.7457666	1.0691828	1.2637377	0.9556332	0.682479	1.0307157	1.0825635	1.222488
Phase-1 RCT-20	1.0182931	1.0163316	1.1525867	0.9718862	1.0160118	1.0152878	1.0331981	1.0060068	1.0682278	1.036447	0.9440893	1.1107574	1.1353658	1.2166934
Phase-1 RCT-248	0.9878134	1.00088	1.2434882	1.0404116	1.0229217	1.0917748	0.9117448	0.9038248	0.9282738	0.9618238	0.8613679	0.7903947	1.0160334	1.0504133
(1) Gene expression data for 6 hour														
limpoint are presented as mean ratio of														
treatment/control for all 6 hour predictive														
genes (Table 20).														
(2) Compound and dose abbreviations as														
in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for														
compound-dose group at 72 h: yes,														
necrosis observed; no, no necrosis														
observed														
(5) Predictive gene (as in Table 20 and as														
included in Table 32)														

Table 34. Expression Data for 6 Hour																
Timepoint (1)																
Compound-Dose (2)																
Animal Number (3)																
Liver Toxicity Necrosis Classification (4)																
Gene Name (5)																
Gadd153																
Interferon related developmental regulator																
IFRD1 (PC4)																
ID-1																
Insulin-like growth factor binding protein 1																
NIPK																
Phase-1 RCT-50																
Sarcoplasmic reticulum calcium ATPase																
Phase-1 RCT-207																
Acetyl-CoA carboxylase																
Cathepsin L sequence 2																
Glucokinase																
Gadd45																
Phase-1 RCT-18																
3-beta-hydroxysteroid dehydrogenase (HSD3B1)																
Phase-1 RCT-221																
Heme oxygenase																
Cyclin dependent kinase 4																
Phase-1 RCT-75																
Phase-1 RCT-65																
Cytochrome P450 1A1																
Peroxisomal multifunctional enzyme type II																
DNA topoisomerase I																
Focal adhesion kinase (p125FAK)																
NGF-inducible anti-proliferative putative secreted protein (PC3)																
Phase-1 RCT-82																
Senescence marker protein-30																
Melanoma-associated antigen ME491																
Activating transcription factor 3																
Tryptophan hydroxylase																
Zinc finger protein																
c-myc																
Cholesterol 7-alpha-hydroxylase (P450 VII)																
Fertilin H-chain																
Phase-1 RCT-197																
Phase-1 RCT-179																
Phase-1 RCT-15																
Argininosuccinate lyase																
Phase-1 RCT-49																
Carbonic anhydrase III																

Proliferating cell nuclear antigen gene	1.0897511	0.986725	1.1767189	1.1330311	1.0434937	1.0735391	1.1469014	1.4021624	1.427327	1.4508018	1.0867715	1.0703213	1.0665827	1.4294137
Integrin beta1	1.0296934	1.1992862	1.3247744	0.9196197	1.0728389	1.0235454	1.0216045	3.1595175	2.2417853	1.8438278	0.9914379	0.9792684	1.0015872	7.585117
Caspase 6	1.028136	1.185081	1.1576191	1.2105614	1.0897089	0.9851775	0.986119	1.2106845	1.2106845	1.0138583	0.9418715	0.9562985	0.9694789	1.0693247
Phase-1 RCT-116	1.0913258	1.2251989	1.0747542	1.2412635	0.8720064	1.0885096	1.4422684	1.4520233	1.8083924	0.8650974	0.9423398	0.7949851	1.0562358	1.0562358
Phase-1 RCT-109	0.9437618	0.9054754	1.1700034	1.3766588	1.2015407	1.4353443	1.4603538	1.5643387	1.167983	1.2676982	0.8743932	0.9392777	1.159103	1.545151
Phase-1 RCT-71	0.9040546	1.1807245	1.4632176	1.5235918	0.974789	0.9047543	1.4141116	1.0319687	1.047232	1.1502593	1.1855267	1.1442884	1.8052722	1.8052722
Elongation factor-1 alpha	0.9076935	1.0527009	1.131851	1.1981305	0.6923534	1.1311064	1.1147811	1.40229	1.5782937	1.3578869	0.9739652	1.0361316	1.041973	0.8984942
Phase-1 RCT-169	1.1489198	0.9414519	1.0890005	1.2482957	0.1519869	1.0079296	0.867298	2.5794394	1.591515	1.3402148	0.9055523	0.9662483	0.7526875	0.4548971
Pyruvate kinase, muscle	0.7241072	1.0318093	1.0223086	1.1665587	0.5872488	1.209805	0.9806993	2.2455969	1.7085392	0.895308	1.1542968	1.0015913	1.425584	1.425584
Nucleosome assembly protein	1.7215058	0.8501829	1.1145272	0.6596642	0.4755126	0.3324799	0.362869	0.618241	0.7025522	1.258528	0.8543731	0.9623375	0.8558404	0.5505292
Phase-1 RCT-127	1.1018689	1.25823	1.3075588	1.2104185	1.0452561	1.1627007	1.0819112	3.1272588	0.73121	0.9245081	0.8657306	0.9806012	1.1231229	2.0728037
Iron-responsive element-binding protein	0.8791832	0.804903	0.7009608	0.7201752	0.8801988	0.807871	0.7323924	0.6960751	0.7689994	1.1788161	1.2229723	1.2326317	0.6971393	0.6971393
Phase-1 RCT-72	1.0602037	1.0097517	1.0178484	0.9406955	0.9806616	0.9959475	0.880735	0.5269981	0.8767434	0.8413168	0.8381942	1.0144038	0.861345	1.1306155
Phase-1 RCT-144	1.0534021	1.0354841	1.4669204	1.6042608	1.1374668	2.0307443	1.6395702	3.628966	2.0307443	1.8025693	1.2085899	1.1826333	1.442581	2.119773
Phase-1 RCT-242	1.1060088	0.8610075	1.3999615	1.6353492	1.1081489	1.1720295	1.076548	9.684165	1.4815421	1.4925004	0.9431441	0.9748188	0.9148597	9.1628475
17-beta hydroxysteroid dehydrogenase, type 2	1.7808369	0.661712	0.9548356	0.3575856	0.2006861	0.2039655	0.2010636	0.2802385	0.4984455	1.6870192	0.8131833	0.9443286	0.9913685	0.2137981
Phase-1 RCT-70	0.8815215	0.8633354	0.8664241	0.8530702	0.9394416	0.9391497	0.7058498	0.6533885	0.8507852	0.74724	1.0160468	0.7933178	0.9031069	0.9366511
Ribosomal protein L13A	0.8972626	1.123362	1.2893931	1.2646034	1.3203602	1.6256821	1.6767935	1.4483297	1.3910498	1.4101118	0.9867002	1.0643643	1.1144984	1.1840187
Cytochrome P450 2E1	0.8630563	0.5715576	0.532455	0.5535799	1.1365325	1.1923635	1.1242486	0.4376164	0.6069357	0.622736	0.5736742	1.2321831	0.7706027	0.6134111
AT-3	0.9759884	0.9074341	0.9911943	0.8142279	1.0929141	1.0036389	1.0939116	1.1195611	1.174079	1.1561028	0.8156385	0.9162785	0.884725	0.9494668
Phase-1 RCT-270	0.9479787	0.8651555	0.6902643	0.4929713	0.9226881	0.6227616	0.6781825	0.331263	0.4193378	1.21691	0.7282107	0.7656892	0.2589854	0.2589854
Phase-1 RCT-123	1.0511678	0.9308649	0.9405516	0.834152	1.0232832	1.0089107	1.099863	1.0566293	1.0515684	1.1779938	0.8836514	1.0060465	1.1400163	0.842928
Alpha-2-macroglobulin, sequence 2	1.2038013	1.3822849	1.2684782	1.4612544	1.088213	1.12614	1.0791031	2.0848744	1.9354894	1.6620501	1.1180482	0.9767897	0.9436341	1.4139075
Matrix metalloproteinase-1	0.9045753	0.9285906	0.8764577	0.9636844	0.9356648	1.069761	1.1871523	0.792478	1.3650474	1.1039944	1.0667423	0.9469835	1.1383064	0.8762247
Beta-tubulin, class I	0.6228005	0.5725357	0.7599318	0.9653844	1.0712517	1.1359575	0.8154547	1.2591382	1.2112389	1.2152867	1.073731	1.4651042	0.8522539	0.8522539
Phase-1 RCT-161	0.9525347	0.8622583	0.7153452	0.4494319	1.0049907	0.9844895	0.895404	0.3547162	0.9227314	0.8253828	0.7840021	0.5986416	0.79548	1.0039078
14-3-3 zeta	1.0312307	1.0848961	1.0899188	1.0773017	1.0987898	1.0924345	1.1727871	1.6708862	1.5687573	1.1121051	1.1239384	0.9514878	1.4898998	1.4898998
Stem cell factor	1.3219398	0.9651328	0.8521898	0.8428169	1.1384411	1.1388916	1.1309311	0.3122962	0.5986137	0.8328635	0.8685027	1.0279878	0.3938148	0.3938148
Macrophage inflammatory protein-2 alpha	1.6472535	1.5832253	3.3913941	1.1714371	1.1485512	1.1319925	2.8700862	1.01659	0.8137181	0.7895597	1.058721	0.8434628	0.9516312	0.9516312
Thymidylate synthase	1.0638106	1.062865	0.9832365	0.9271075	1.0311226	1.129138	0.8720717	0.8165292	0.7861435	0.899439	1.1111943	1.0587991	1.0848315	1.0848315
c-Jun	0.7231992	1.0636092	1.2081821	1.136395	0.9659413	0.9341424	0.4683426	0.6643291	0.7262391	0.8652158	0.8047538	1.4232118	0.7525032	2.6571016
Superoxide dismutase Mn	1.1301152	0.8298544	0.9463896	1.6167457	1.0590942	1.2505109	1.191282	4.0748386	6.1163354	3.9365533	1.1978381	0.9895366	1.1507127	9.522318
Phase-1 RCT-73	1.0596572	0.9114673	1.0039325	0.8140292	0.912038	0.8499407	0.8894822	0.9585855	1.2285091	1.3584143	1.1383699	1.0425117	1.1391124	0.581481
Macrophage inflammatory protein-1 alpha	1.0012385	1.0678896	0.9425554	1.1537448	1.0747093	1.0173438	0.985906	2.6214674	1.5245483	1.247878	0.7525905	0.9752287	0.7763016	1.5353768
Phase-1 RCT-214	0.9196772	0.6234576	0.6201433	0.54618	1.0316507	0.9055615	1.0152906	0.3557716	0.7282479	0.8508155	0.6860188	0.9382328	0.9780841	0.3424636
NADH-cytochrome b5 reductase	0.7455637	0.7221691	0.5807792	0.4906586	0.7688027	0.6613845	0.7351604	0.5274558	0.5250855	0.5764589	1.2689832	1.031508	0.8872259	0.458207
Interleukin-1 beta	0.9073124	0.9022868	0.8463323	0.9268324	1.1905206	1.1433368	1.2719836	0.7638702	1.3719834	1.2384241	0.9366627	0.9925091	0.9582617	1.1757431
NADP-dependent isocitrate dehydrogenase, cytosolic	0.7810223	0.6321428	0.5843269	0.5092659	0.9866183	0.9812557	0.9609651	0.3768987	0.5725113	0.6310725	1.3144648	0.9783028	1.1305422	0.2285338
Phase-1 RCT-289	0.9634334	0.8108795	0.7658076	0.7665552	0.6439638	0.813585	0.8244113	0.8772255	0.8329076	0.8979993	1.068664	1.1137666	1.0042347	0.528327
Glutamine synthetase	1.0803361	1.3987729	1.7521758	1.1698112	1.0387564	1.243397	1.2391644	2.21418	1.4192013	1.2165844	1.590084	0.8584124	0.8273197	0.697988
Phase-1 RCT-182	1.1764893	0.8417486	0.7676665	0.6398591	0.7269443	0.7956127	0.6884282	0.7698764	0.5891542	0.6468979	1.0755646	0.7887591	0.7088199	0.3807657
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.1488316	1.11947	1.3307228	1.3360448	1.4110401	0.9231289	1.1342868	2.4847426	2.1554332	2.0340924	1.1098836	1.1654197	0.9852318	1.4229134
Extracellular-signal-regulated kinase 1	1.6081673	1.1245155	0.7399845	0.6379845	1.097131	0.7860098	0.652741	0.5982122	0.2098335	0.7867657	1.1014205	0.5311638	0.3978902	0.8091687
Eimerin	0.8942308	0.843747	0.8888914	0.8373954	0.9297651	0.8438871	0.862223	1.0141357	0.7876743	0.8612817	1.0019866	1.066058	1.0298068	0.9470561
Phase-1 RCT-78	1.0758878	0.9047376	0.7439705	0.7787119	0.9847403	0.9336149	0.8479589	0.8712428	0.7982941	0.6794639	0.9730215	0.9549288	0.7928453	0.6833263
Phase-1 RCT-212	0.7839279	0.9503546	0.9676265	0.9676265	1.0212438	1.0081414	1.1609261	0.8334462	0.9230196	0.7608674	1.0761214	1.1818571	0.9873838	1.0145875
Phase-1 RCT-168	0.7628744	0.7219511	1.0708559	0.5708953	0.8891723	0.5989848	0.695806	0.354471	0.6975219	0.6754807	1.0614272	1.031299	1.0358401	0.4757742
Lysyl hydroxylase	1.1273719	1.1075172	1.3210288	1.125713	0.9728623	1.1593138	1.136839	1.5474819	1.2623758	1.0489478	1.1832788	1.0727407	0.9938495	0.8114587
Phase-1 RCT-55	0.651376	0.6732449	0.9040576	0.8420354	1.0488449	1.0537916	1.0531853	0.8916424	0.6834844	0.6411634	1.1295388	1.1210498	0.8445801	1.3403332

MHC class I antigen RT1.A1(f) alpha-chain	0.9529482	0.9644675	1.0865027	1.0817862	0.4811456	0.420739	0.3560063	0.6185644	0.9295398	1.2161598	1.1808603	0.9119438	1.1856972	1.5042693
Phase-1 RCT-40	0.8990918	0.8520672	0.8283281	0.7719045	0.9577521	0.8987123	0.8720716	0.7079805	0.9545589	1.0881213	0.8765525	0.8765525	0.9822658	0.4853818
Cyclin G	0.9857627	0.7482751	0.9870411	1.3463203	1.1237624	1.0946981	1.2333338	2.4413002	2.4921587	1.3048314	1.493512	1.1726016	1.2441028	2.2264364
Peroxisome proliferator activated receptor gamma	1.0782725	0.9990219	0.9674143	0.8224748	1.0998039	1.0335038	1.1193396	1.3539121	1.2008408	1.067773	0.8045256	1.2323211	1.1127053	0.9407037
Phase-1 RCT-280	1.1286888	0.9681054	0.9307225	0.8516575	0.8594139	1.0839612	1.1654886	1.1687623	1.5020163	1.7023355	0.7940206	0.9688884	0.839712	0.8991229
D-dopachrome tautomerase	0.8349549	0.7522583	0.6958076	0.666018	0.9820644	0.8396218	0.908399	0.7437282	0.8814949	0.9533688	1.267419	1.038328	1.0062424	0.3894646
Phase-1 RCT-287	0.8742486	0.788684	0.8273925	0.6667829	1.0045755	0.9854103	1.0659937	0.988357	1.0886254	0.9868358	1.0711565	0.9048877	1.046468	0.721317
Phase-1 RCT-119	1.203325	1.5088385	1.0357172	1.1783049	1.0091828	0.9959831	0.9880701	0.6405414	0.7311688	1.074997	0.8350776	0.8332445	1.0509008	1.0434809
Thioredoxin-1 (Trx1)	1.0298781	0.8839801	1.1378111	1.0943652	0.8792204	0.8463008	0.8772386	1.0355676	1.5046414	1.4396245	1.1425707	0.981987	1.0823907	1.0434809
Phase-1 RCT-225	0.6906859	1.0495203	0.9392533	0.8982911	0.8693634	0.603808	0.6859025	0.3949658	0.5094572	0.5719407	0.8893925	1.3970246	0.949782	2.0354884
Protein kinase C alpha	0.9885746	1.0677347	1.0984975	1.0851512	0.940594	1.1256125	0.9893801	0.9417291	0.8132979	0.8065256	1.10531	0.9094369	1.1954854	1.1954854
Phase-1 RCT-87	0.8516005	0.8277987	0.9154398	0.781625	1.0003433	1.1352594	1.1252395	0.5992389	0.9686637	0.9549139	1.155893	1.0210634	1.0168767	0.7201638
Phase-1 RCT-59	1.0750806	0.9478618	0.9244025	1.0301212	0.9119055	0.8848243	1.0421901	2.9625936	1.0366244	0.9679333	0.7687917	1.0484384	1.0540829	2.2288082
Ca ²⁺ -binding protein	1.152354	1.0763485	1.0389904	1.0678023	0.9995718	0.8604266	1.5424225	0.6305668	1.846223	1.4642987	1.3067627	0.9717332	1.5207027	0.8285846
Phase-1 RCT-204	1.0275985	1.0440515	0.9439316	0.9641559	1.0407457	1.1550591	1.183612	0.9976274	1.3176935	1.4610274	1.0580602	1.0160569	1.0772231	0.8582717
Camitine palmitoyl-CoA transferase	1.0338005	0.8877612	0.7674275	0.9178608	0.9617786	0.6582729	0.8344178	1.6889536	0.8078581	1.6294596	0.8705062	0.8668874	0.94897	0.9747372
B-oxoguanine DNA glycosylase	0.9279355	1.0716586	1.0491873	0.9273238	1.0881871	1.1416774	1.1355017	1.1671425	0.49547	0.4766083	0.8559238	1.1389185	1.258636	1.0613165
H-rev107	0.9800145	0.83538	0.7509936	0.9673784	1.0028638	0.898985	1.0824822	0.6467125	0.9057511	0.3730438	1.1665697	1.057679	1.0389338	0.7020814
Preproalbumin	1.1997442	1.0084185	0.7840786	0.7145684	0.2967645	0.8155893	0.7082671	0.9969268	1.3482973	1.6250275	1.3673252	1.0770427	1.3796384	0.405783
Phase-1 RCT-177	0.98301	0.8464024	1.0867333	0.9740524	0.7617478	1.0111414	1.0784268	1.0484556	0.8983942	0.8088272	0.8629248	0.9440837	0.9662713	1.0334934
Phase-1 RCT-110	1.0585583	0.9061975	0.892823	0.9416543	1.017212	0.8762425	0.9567248	1.0472249	0.8709278	0.7783664	1.2691003	0.8782275	0.8984144	0.607359
Phase-1 RCT-227	1.0613592	1.1008259	0.6467739	0.8485168	0.7962874	0.8762425	0.9567248	1.0472249	0.8709278	0.7783664	1.2691003	0.8782275	0.8984144	0.607359
Neuropeptide Y	1.1084256	1.0189542	0.9165136	1.0301815	1.0439323	1.0468837	1.1807181	0.9489014	1.0389317	0.9147463	0.9411258	1.0485605	1.3406657	1.0645744
Phase-1 RCT-277	0.3990001	0.6206554	0.5329896	1.0717953	0.9550581	1.0435135	0.9900913	0.8231311	0.9287719	0.8723901	1.0958188	1.8018144	1.8281044	0.9241087
Phase-1 RCT-229	1.0259573	1.0218699	0.9527892	0.9439368	1.029568	1.0508895	1.0819112	0.7573872	0.8176934	0.7733643	0.8000171	0.8712284	0.8235306	0.9708303
Phase-1 RCT-34	0.8661957	0.7248761	0.6439076	0.4943302	0.9699812	0.9088196	0.8574428	0.2728113	0.698128	0.667824	1.1486567	1.0831641	0.8465119	0.3158725
Choline kinase	1.2703942	1.0927864	1.037551	1.0268825	1.1522398	1.1482743	1.1593593	0.4911241	0.8793119	1.0698757	0.7811079	0.770871	0.7246327	1.5810117
Phase-1 RCT-20	1.0350719	1.1245399	1.100212	1.0298755	0.9614413	0.9180853	0.8274643	0.3696094	1.1110257	0.9545777	0.8381421	1.0417258	0.9511538	1.1916534
Phase-1 RCT-248	1.0191532	0.8057694	0.8051589	1.0688107	1.0702499	1.1514677	1.1921928	1.1631304	1.075939	1.1317575	0.8252632	0.9703334	0.9546592	1.1157085

(1) Gene expression data for 6 hour
timepoint are presented as mean ratio of
treatment/control for all 6 hour predictive
genes (Table 20).
(2) Compound and dose abbreviations as
in Table 1.
(3) Individual animal number.
(4) Liver necrosis classification for
compound-dose group at 72 h: yes,
necrosis observed; no, no necrosis
observed.
(5) Predictive gene (as in Table 20 and as
included in Table 32).

Table 34. Expression Data for 6 Hour Timepoint (1)			
Compound-Dose (2)	THEO 100	THEO 100	THEO 100
Animal Number (3)	2532	2532	2533
Liver Toxicity Necrosis Classification (4)			
Gene Name (5)	no	no	no
Gadd153	1.2840645	0.8543842	
Interferon related developmental regulator			
IPRD1 (PC4)	1.5135175	1.7927483	
ID-1	1.5134492	1.0961545	
Insulin-like growth factor binding protein 1			
NIPK	1.8577055	1.0195587	
Phase-1 RCT-50	1.0404977	1.0693463	
Sarcolemmal reticulum calcium ATPase	1.7231	0.9665522	
Phase-1 RCT-207	1.4429387	1.2799648	
Acetyl-CoA carboxylase	2.1250558	2.0207424	
Cathepsin L sequence 2	1.5450202	2.034776	
Glucokinase	1.6378412	1.9477276	
Gadd45	0.2231991	0.325073	
Phase-1 RCT-18	2.2720706	1.2665205	
3-beta-hydroxysteroid dehydrogenase (HSD3B1)	1.0562044	1.0352442	
Phase-1 RCT-221	0.8841856	0.790359	
Heme oxygenase	1.0854243	0.874207	
Cyclin dependent kinase 4	5.717468	2.1466841	
Phase-1 RCT-75	0.9631147	1.0132068	
Phase-1 RCT-65	1.2296071	1.4222938	
Cytochrome P450 1A1	0.4145742	0.3801141	
Peroxisomal multifunctional enzyme type II	1.155507	1.1110605	
DNA topoisomerase I	0.8394799	0.8796246	
Focal adhesion kinase (pp125FAK)	1.3263638	1.1424066	
NGF-inducible anti-proliferative putative secreted protein (PC3)	1.2758701	1.1721156	
Phase-1 RCT-82	1.3785621	0.8526026	
Senescence marker protein-30	0.8330126	0.8465989	
Melanoma-associated antigen ME491	0.3005393	0.3606139	
Activating transcription factor 3	1.3453335	1.1431388	
Tryptophan hydroxylase	0.8186535	0.8512373	
Zinc finger protein	0.696626	0.8788759	
c-myc	2.394894	1.3506024	
Cholesterol 7-alpha-hydroxylase (P450 VII)	2.3545673	1.0720751	
Ferritin H-chain	0.914404	0.9928329	
Phase-1 RCT-197	0.7879278	0.6523632	
Phase-1 RCT-178	0.8586181	1.1862805	
Phase-1 RCT-15	2.7024078	1.8806285	
Argininosuccinate lyase	1.7152029	1.8299277	
Phase-1 RCT-49	1.7210898	2.0828123	
Carbonic anhydrase III	2.4710927	2.0702784	
	0.2038679	0.1489183	

Table 34

Proliferating cell nuclear antigen gene	1.4133391	1.4064122
Integrin beta1	1.7902143	1.2066578
Caspase 6	0.7514862	0.7619633
Phase-1 RCT-116	1.029916	1.0601768
Phase-1 RCT-109	1.1472744	0.978056
Phase-1 RCT-71	1.339217	1.6004844
Elongation factor-1 alpha	1.1922263	0.9392347
Phase-1 RCT-169	0.5900487	0.5647399
Pyruvate kinase, muscle	1.419108	1.4972262
Nucleosome assembly protein	0.5366014	0.6443425
Phase-1 RCT-127	2.3874643	1.8279369
Iron-responsive element-binding protein	0.5931574	0.8605114
Phase-1 RCT-72	1.1636096	1.092896
Phase-1 RCT-144	2.3132586	1.723946
Phase-1 RCT-242	2.615471	1.2044868
17-beta hydroxysteroid dehydrogenase, type 2	0.2331921	0.2327655
Phase-1 RCT-70	0.885477	1.0187027
Ribosomal protein L13A	1.2628536	1.0602447
Cytochrome P450 2E1	0.7337926	0.7852657
AT-3	0.9116857	0.9323819
Phase-1 RCT-270	0.2977355	0.4287843
Phase-1 RCT-123	0.9165151	0.8891025
Alpha-2-macroglobulin, sequence 2	2.5233362	2.715508
Matrix metalloproteinase-1	0.9226188	0.779699
Beta-tubulin, class I	0.8473058	0.6011008
Phase-1 RCT-161	0.9406388	0.9734567
14-3-3 zeta	1.131468	0.949575
Stem cell factor	0.5186146	0.5154229
Macrophage inflammatory protein-2 alpha	1.0026371	0.9322481
Thymidylate synthase	1.011496	1.0960153
c-Jun	1.4275053	1.0407388
Superoxide dismutase Mn	8.430987	2.6703746
Phase-1 RCT-73	0.7147318	0.6293513
Macrophage inflammatory protein-1 alpha	1.1271933	1.0955105
Phase-1 RCT-214	0.4287686	0.4825276
NADH-cytochrome b5 reductase	0.433085	0.6039734
Interleukin-1 beta	1.057491	0.996048
NADP-dependent isocitrate dehydrogenase, cytosolic	0.2320493	0.4220588
Phase-1 RCT-289	0.5905693	0.7509664
Glutamine synthetase	0.7057206	1.2005938
Phase-1 RCT-182	0.4469583	0.5662849
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.7556481	1.4431288
Extracellular-signal-regulated kinase 1	0.3809016	0.2992182
Emerin	0.9017744	0.9099838
Phase-1 RCT-78	0.7515341	0.757053
Phase-1 RCT-212	1.0426927	1.1432428
Phase-1 RCT-168	0.4110178	0.4683473
Lysyl hydroxylase	0.9385527	1.0255687
Phase-1 RCT-55	1.5320877	1.5006536

Table 34

MHC class I antigen RT1.A1(f) alpha-chain	0.88223	0.8514664
Phase-1 RCT-40	0.5595728	0.5963956
Cylin G	1.9064409	1.5431788
Proximosome proliferator activated receptor gamma	0.9634767	0.9402155
Phase-1 RCT-280	1.5064856	0.7863306
D-dopachrome tautomerase	0.3965566	0.5014159
Phase-1 RCT-287	0.7420956	0.8771454
Phase-1 RCT-119	1.2604584	1.7668016
Thioredoxin-1 (Trx1)	1.2330936	1.046098
Phase-1 RCT-225	1.5842136	0.7874278
Protein Kinase C alpha	1.1573874	1.0430955
Phase-1 RCT-87	0.7304875	0.9904006
Phase-1 RCT-59	2.3831477	2.4686112
C4b-binding protein	1.2686068	1.0474222
Phase-1 RCT-204	1.0403843	0.9962844
Camitine palmitoyl-CoA transferase	1.0556021	1.088
8-oxoguanine DNA glycosylase	1.0506706	1.1156777
H-rev107	0.8983872	0.9394816
Preproalbumin	0.5825915	0.8190556
Phase-1 RCT-177	0.6331104	0.763036
Phase-1 RCT-110	0.9720579	0.9945264
Phase-1 RCT-227	0.6451422	0.7021602
Neuropeptide Y	1.1881785	1.1931964
Phase-1 RCT-277	0.7343959	1.1811877
Phase-1 RCT-229	0.9538933	1.0020951
Phase-1 RCT-34	0.3384442	0.3596198
Choline Kinase	1.146868	0.9373832
Phase-1 RCT-20	1.1159762	1.0540992
Phase-1 RCT-248	1.0476844	0.9941281
(1) Gene expression data for 6 hour timepoint are presented as mean ratio of treatment/control for all 6 hour predictive genes (Table 20).		
(2) Compound and dose abbreviations as in Table 1.		
(3) Individual animal number		
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed		
(5) Predictive gene (as in Table 20 and as included in Table 32)		

Table 34

Table 35. Expression Data for 24 Hour

Phase-1 RCT-191	1.589339	1.4355308	1.5240867	1.0897073	1.4454972	0.9717988	1.1386346	0.9875454	1.1399181	1.2238399	1.1713823	1.0227512	0.7916213	0.944196
Phase-1 RCT-189	0.957172	0.9813333	1.0627927	0.9603199	0.9504963	1.0071	1.1807938	1.0361978	1.186117	0.9110143	0.8260672	0.7520856	1.1312684	1.1596029
Phase-1 RCT-179	0.9294973	0.8791354	0.8680937	0.8467943	0.8111437	0.7780451	0.8111154	0.9625362	0.9189495	0.9255564	0.8254903	1.2064903	1.2141274	1.2141274
Phase-1 RCT-152	0.930756	0.7658373	0.8526723	0.7580634	0.7153202	0.8303959	0.8404895	0.8490785	0.9490785	0.7835439	0.8992117	0.7232087	1.2008587	1.0749402
Phase-1 RCT-123	1.0235242	0.9633438	0.9743514	0.8897603	1.004225	1.1634424	0.9645892	0.9104691	1.0329788	1.0294486	1.0414743	1.094004	0.948637	0.9789223
Paroxonease 1	0.6920878	0.7282934	0.6632389	0.8540971	0.6665652	0.7230098	0.7127778	0.6696453	0.6696453	0.7821772	0.6893359	1.0735302	0.9749345	0.9749345
Organic anion transporter 3	0.7457268	0.9852116	0.7191772	0.1048876	0.9527009	1.3286465	0.7104384	1.3038136	1.1778989	1.2158521	1.1630347	1.1539832	1.1097461	0.9805166
N-hydroxy-2-acetylanthracene sulfotransferase (ST1C1)	0.7415294	0.7526311	0.6513983	0.7900789	0.5953234	1.0278628	0.638206	0.5931203	0.5928167	0.780278	0.9388148	0.8355691	0.9899004	1.0806474
Integrin beta1	0.959797	0.8837991	0.8777278	1.1494938	1.0974783	1.2803507	0.9689227	1.296391	1.2332006	1.2903486	1.2740508	1.3886692	1.2685422	1.0535703
Insulin-like growth factor binding protein 3	0.7538389	0.8281868	0.9423842	0.7099455	0.8942794	0.9921948	1.0137434	0.9752592	1.0442053	0.774142	0.8645647	0.6147068	1.2881382	0.9133946
ID-1	1.2034271	1.4213678	1.3590462	0.928004	0.91022	1.0789943	1.1966172	1.0789943	1.215396	1.0370384	1.0159978	0.9002337	0.9515531	0.9025709
Hepatic lipase	0.9425939	0.8856835	0.8810079	0.5868204	0.723527	0.8124986	0.6973903	0.580999	0.6124978	0.8207561	0.8267142	0.9853741	0.9025518	0.7897592
Heme oxygenase	0.8559955	0.8107492	0.7697256	1.0312041	1.0437711	1.4447311	1.0176487	0.9735802	0.81857	1.1482412	1.2556607	0.9316275	1.325053	0.8858699
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.8776665	0.8876054	0.7660337	0.8887283	0.7155096	0.8258019	0.8052473	0.8245753	0.6847123	0.8785653	1.0180075	0.9749414	0.8590571	0.9898835
Epidermal growth factor	0.9639346	0.9443616	0.9327937	1.0038493	1.0512372	1.1399446	0.8661233	0.9806534	0.944824	0.8198304	0.9033831	0.7848428	1.516955	1.2809311
C-myc	1.2556394	0.9573229	0.8723531	1.5037686	1.3402379	1.3130077	1.1648532	1.3558338	1.1519816	1.269491	1.0737239	1.2187083	1.0842137	1.0020177
Carbonic anhydrase III	0.8394085	0.6661759	0.7352127	0.9730505	0.4981356	0.4177677	0.6849998	0.5937173	0.938281	0.9307031	1.0554777	0.5985045	1.0986143	1.4797468
Beta-actin	1.1125833	1.0069311	1.080633	0.8421082	0.7735134	1.0232419	1.0695546	0.867212	0.919635	0.9672285	2.4768662	2.7791693	0.874977	0.7695192
Bax (alpha)	1.2416824	1.1744834	1.2701218	1.2628851	1.418582	0.908126	1.8201531	1.6742516	2.4587035	1.295488	1.1407483	1.307053	0.9552065	0.9472449
Alpha 1 - inhibitor III	0.6311194	0.5582825	0.667051	0.628073	0.567357	0.7400326	0.8073888	0.6584054	0.8384187	0.4391303	0.8929285	0.6857082	0.5854951	0.9439877
60S ribosomal protein L6	0.9602271	0.8815434	0.9421652	0.7749037	0.7103887	0.7249129	0.9687549	0.930169	0.890568	0.8307589	0.8983789	0.7420199	1.0880226	1.0149885
Phase-1 RCT-117	1.1647286	0.8430245	0.795242	1.1680948	1.2766598	1.134663	1.1515241	0.931738	0.5392493	0.5392493	0.984685	0.907024	0.7383441	1.1378953
Phase-1 RCT-102	0.9053056	0.75501	0.8611785	1.1961309	1.6769581	1.8933763	1.5027566	0.8443657	1.0776381	0.6762855	0.7629119	0.5259215	0.9226028	0.823916
3-hydroxyisobutyrate dehydrogenase	0.7644417	0.8099306	0.7458267	0.8211354	0.7821619	0.7580239	0.8516723	0.7781804	0.8586909	1.0066533	0.9518525	0.8933026	1.1824843	1.1520633
ATPase inhibitor (rat mitochondrial IF1 protein)	0.802482	0.6290388	0.6811787	0.7644631	0.6640281	0.699207	0.8686532	0.719345	0.8283529	0.8283529	0.6841613	0.5084229	1.4203913	1.2955924
Alpha-2-macroglobulin	0.9666392	1.0481755	0.7910072	0.8375054	0.55787	0.7578951	0.8182324	0.6865727	0.8395349	0.727021	0.7683781	0.9628828	0.6194958	1.3751622
Phase-1 RCT-137	0.8303145	0.6784075	0.8429167	0.8037788	0.7698091	0.7706092	0.912308	0.7666324	0.9301438	0.7138007	0.7273785	0.6056705	1.3410574	1.5034786
Phase-1 RCT-252	0.6560146	0.8101222	0.9351693	0.8428133	0.9022817	0.8775506	0.9891068	0.816385	0.8081465	0.8312343	0.80571	0.8828082	0.9844119	0.8206223
Phase-1 RCT-65	1.1814723	1.3848194	1.0991114	1.1430959	1.4789107	1.6424018	1.2501326	1.378758	1.3046662	1.5326178	1.3918132	0.949553	1.0112531	1.0112531
Liver fatty acid binding protein	0.8225945	0.755037	0.8781555	0.608056	1.1296586	0.8484246	0.8121429	0.6958506	0.6336875	0.7487841	0.9535539	0.633476	1.3805846	1.2572317
Carbamyl phosphate synthetase I	0.6134369	0.7673738	0.8715026	0.8482378	0.9113016	0.8917755	1.0281152	0.8562398	0.8177047	0.8605284	0.8054114	0.7509247	0.9854083	0.8224081
C-Jun	1.1744986	1.4761358	1.1978464	1.6667671	2.1156347	1.9463342	1.3228419	1.8395363	1.4393637	0.9833522	1.0151979	0.9719749	1.0713656	1.0493238
Transferrin	0.5051306	0.5640249	0.5803367	0.7253085	0.6587368	0.8447225	0.9205499	0.5872653	0.6551925	0.6613085	0.7890704	0.5748965	1.0544994	1.0695916
Alfa-toxin B1 aldehyde reductase	0.9825718	0.9719576	1.004303	0.8531947	0.652617	0.84073	0.9970102	0.9282437	2.0246065	0.722496	0.9845435	0.8905217	0.9831285	1.0283256
Phase-1 RCT-15	1.0476011	1.1975862	0.9823651	1.123427	1.1442177	1.2747158	1.2646374	1.2709818	1.1688368	1.4327178	1.4184921	1.4717025	0.9947144	1.1576836
Insulin-like growth factor I	0.673672	0.5638892	0.7470547	0.7359452	0.9152294	1.0104843	1.0725784	0.7755994	0.9910879	0.788438	0.7801899	0.6827156	1.2177734	0.9285826
Sodium/bile acid cotransporter	0.6770603	0.8037157	0.5383247	0.772383	0.7382281	0.8717047	0.6441643	0.8426185	0.7971108	0.5944278	1.0647414	0.6077975	1.732075	0.9933712
Organic cation transporter 3	0.9872308	0.9144946	0.9809934	1.197376	0.957618	1.0156827	1.0696678	1.1952068	1.0582124	0.7761408	0.856324	0.8057378	1.1218594	1.0844948
Gadd153	1.0656637	1.0819016	1.1014409	1.3004087	1.1418839	1.2355886	1.1323394	1.3915831	1.2783103	1.2222211	1.0213656	1.2682419	1.0942502	1.0874459
Phase-1 RCT-109	0.9288786	0.9429688	1.0163127	0.7688204	0.9333745	0.7531855	1.0160506	0.9374391	0.9458841	1.1642103	1.2188075	1.030518	1.0794307	1.0029254
Phase-1 RCT-48	0.8410778	0.8999794	0.7897615	1.0629405	0.9164393	1.0688851	0.8620212	0.7713925	0.9519671	0.6628439	0.8254275	0.8373817	0.9800136	1.04734
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.0090814	0.8631023	1.027551	0.8938054	0.8092048	0.9160371	0.9142789	0.8923608	0.9667737	0.8466024	0.8069464	0.814561	1.131639	1.1849248
Glucose-regulated protein 78	1.347454	0.9249608	1.0002779	0.7082724	0.7203007	0.831907	1.0513484	1.1012429	0.8860978	1.4893846	1.0288177	1.1946875	1.3228414	1.0606775
Ribosomal protein L3A	0.9291038	0.8786943	0.9376202	0.7629735	0.9454066	0.7374412	1.0712136	0.9976686	0.9033369	1.3120813	1.2298342	1.1284492	1.2836893	1.2161244
Monocyte chemoattractant protein receptor (CCR2)	1.108431	1.0272442	1.0899223	1.5510839	1.1705893	1.333799	1.2815113	1.5947446	1.5423346	0.9180399	0.8828574	1.0863031	0.9213958	0.986389
Fas antigen	1.2969109	1.0780027	1.0589168	0.9647479	0.9786271	1.0387534	1.2973256	1.1208655	1.1012806	1.3954457	1.6575236	1.0451683	1.0708269	1.0708269
Calpain I heavy chain	1.1729448	1.1061074	1.276587	1.1088448	0.9847337	1.4033927	1.2971118	1.0623697	1.3189057	1.3870574	1.176196	1.0492951	1.0503352	1.0503352
Uncoupling protein 2	1.0172572	0.932326	1.0646602	1.0087826	1.0422384	0.8998179	1.0939405	1.2260782	1.0403274	1.158883	1.1235359	1.1682943	1.1405665	1.2100816

Phase-1 RCT-168	0.9633163	1.0560569	1.3160982	0.9709101	0.944249	1.0057173	0.8957675	0.8356137	0.7324105	0.8088246	0.8856127	0.7707384	0.8763399	0.8311132
Phase-1 RCT-154	1.1245687	0.9558731	1.0590948	1.0176849	1.013118	0.9988762	2.580363	2.2507923	2.525899	0.8633191	1.0331408	0.9781032	1.1033485	1.0670265
Superoxide dismutase Mn	1.1324732	1.144354	1.0584015	0.8849232	0.9189562	0.9847251	1.0782819	1.041932	1.021478	1.1370398	1.1964532	1.02008	1.1716846	1.2457026
Phase-1 RCT-214	1.1671687	0.9639619	1.1359466	0.939544	0.8672384	1.1081185	0.846329	0.6486018	1.087179	1.2982978	1.2471573	1.2982978	0.9627687	1.0128975
Phase-1 RCT-225	1.5419785	1.5970343	1.085522	1.2804985	1.3645488	1.5460782	1.1515332	1.4604083	1.9018037	1.5824646	1.6278248	0.915002	1.0538984	0.9361214
Phase-1 RCT-181	1.1259185	1.0983542	1.0375159	0.9117115	1.3550928	0.8866687	0.9872145	1.0954368	1.0280274	1.0151833	1.0094173	0.9226288	0.9249831	0.9039672
Nucleoside diphosphate kinase beta	1.1012578	0.9614247	1.2050774	0.7670224	0.8638704	0.8036818	0.9872033	0.9729523	1.0197171	1.2298536	0.8894089	1.1502217	1.3527202	
isoform	0.8534378	0.6854154	0.7451769	1.0550921	0.7509343	0.8050641	0.8938826	1.1070317	1.075846	1.0540497	1.1447276	0.7444317	0.9680275	1.3552467
Extracellular-signal-regulated kinase 1	0.8708381	0.7953882	0.9023265	0.796707	0.760862	0.8027847	1.0141122	0.7690627	0.8916913	0.8670989	0.9519953	0.8320139	1.2267033	1.0718535
Ribosomal protein L6	1.1834677	1.1346823	1.2817447	0.8313519	0.9138298	0.9140008	0.9088838	0.8768862	0.8658862	0.9184731	0.8487982	1.1394561	1.0673968	
Aldehyde dehydrogenase, microsomal	1.052024	1.0942703	1.0409782	1.0380415	0.9094677	0.9746472	1.1217331	1.2351357	1.1178073	0.9108433	0.8760809	1.0271506	1.1171085	1.0065411
beta	1.1428587	1.1938224	1.1353062	1.0183517	1.4855719	1.4244561	1.1483557	1.1877072	1.2254288	1.2677582	1.342256	1.3076787	0.7406275	0.8298853
Macrophage inflammatory protein-2 alpha	1.0204061	1.3235006	0.9874173	1.1621082	1.1772798	1.6081469	1.050757	1.3891182	1.4428144	1.1068924	1.0778382	1.208523	1.2132836	1.1950506
IgE binding protein	0.9121918	0.9083094	0.8378812	1.0531306	1.224349	1.3156986	1.0154625	1.0802361	1.0328445	1.0943258	1.065537	1.0439243	1.0789162	0.9736975
Phase-1 RCT-205	1.058898	1.1280379	1.2269703	1.1254572	1.3340502	1.1931122	1.0193665	0.9727485	1.1119434	0.9788992	0.8332482	0.9377763	0.7845797	0.9737628
Melanoma-associated antigen ME491	1.0375177	1.1374773	0.8617728	0.92368	0.8712776	0.7646829	1.0675931	0.9731291	0.8615104	0.9180655	0.9607673	0.8656814	0.8593465	0.972876
Phase-1 RCT-242	1.0861074	1.1926715	1.0917605	1.3877577	1.1097107	1.4220744	1.489097	1.2405444	1.4084667	1.1248877	1.1811055	1.20148	0.7011897	0.9541348
Enolase alpha	1.1413764	0.7946374	1.3107854	0.8263328	0.5296867	0.631955	0.9601858	0.4232743	0.7050132	0.9049337	0.9241083	1.0508182	1.2190401	1.5865831
Thymosin beta-10	0.9876697	0.8630124	0.9579362	0.8805448	0.839964	1.0476573	1.0547793	0.9079984	1.0283252	1.0723436	1.0575863	1.3530982	1.2984315	
Colicin	1.0454941	0.9625092	1.0086012	0.8768813	0.8280717	0.9322122	0.979426	0.835503	0.9433985	0.8527123	0.930896	0.913214	1.0442383	1.1501076
Carbonyl reductase	1.1883663	1.2043815	1.2089872	1.4120765	1.0944185	1.1135831	1.0254887	1.421994	1.1156358	1.120373	0.9737988	1.2524885	0.8795914	1.0405784
MAP kinase kinase	1.0824237	1.0124472	1.0826418	0.854018	0.8664909	1.0648104	0.8571875	0.9585358	0.9758284	0.9617103	0.952728	0.9804574	0.9181999	
Phase-1 RCT-162	0.9305023	0.9782598	0.9711172	0.984268	0.9430872	0.9813772	1.0271157	0.8819866	0.9545043	0.9232208	0.9951115	0.8568474	1.187671	1.1879085
Phase-1 RCT-72	0.9478011	0.9927654	1.0133151	1.202419	1.0749412	1.5916219	1.004745	1.3890849	1.0493258	1.065431	1.1870025	1.0982953	0.8266573	0.9001788
Ribosomal protein S8	0.772163	0.7123377	0.8073831	0.7432665	0.7322153	0.9177516	0.9177516	0.8139034	0.8492166	0.8139034	0.92109	0.7418778	1.3837492	1.2226678
Proliferating cell nuclear antigen gene	0.9405809	0.9422681	1.0109384	1.1720645	1.1483159	1.1526172	0.9860881	1.2565892	1.0492882	0.9342179	0.9610172	0.9974282	1.0243478	1.0754528
Phase-1 RCT-192	1.1132158	0.9255505	0.9692047	0.872476	0.8292279	0.7175829	0.9216096	0.8232578	0.875704	1.1178906	1.181488	0.8020556	1.2273967	1.2119337
IkB-a	0.9691882	0.9259872	1.1694446	0.8077511	0.6992489	0.8052583	0.8794727	0.8224846	0.8824672	0.8367836	0.9814149	0.9959012	0.9628551	1.0242837
Endogenous retroviral sequence, 5' and 3' LTR	0.9026088	1.1204435	0.9442034	0.9288239	0.9721721	0.8393259	0.9950646	0.9160741	1.2891484	1.5841322	1.2960659	0.9523855	0.9994521	0.8615828
Phase-1 RCT-37	0.8961507	0.9234294	0.9431601	1.0185499	0.9925371	1.2430218	1.0544777	0.9756728	0.9541888	0.947503	1.0052108	0.94906	1.0808233	1.0024878
Matrix metalloproteinase-1	0.6609957	0.6991246	0.6311756	0.7559208	0.9048851	0.9508686	0.835312	0.8100137	0.8333569	1.1158096	1.126581	1.1223301	1.0812477	1.2783018
Cyclin G	1.2350241	1.2108237	1.3522166	1.4034588	1.0933255	1.55363	2.3834968	1.87699	3.7271981	1.6658889	1.0568213	1.099879	1.0808889	0.9943242
DNA polymerase beta	0.8684421	0.8521425	0.9054932	0.8683556	0.768411	0.8994175	0.9006014	0.9189502	0.9204193	0.7888831	0.9703308	0.8867658	1.124575	1.1490761
Phase-1 RCT-127	1.0414683	0.9647064	0.9414419	1.0842229	1.0088959	1.1533952	0.9572113	1.3093932	0.9933307	0.786047	1.0096066	1.008742	0.9139869	1.0123742
Multidrug resistant protein-2	0.8078203	1.3479131	0.7112554	0.9033722	0.9381391	1.0345547	1.16298143	1.9177527	1.0098183	1.0122682	1.1600221	1.1390125	1.000016	
Phase-1 RCT-12	0.9879827	0.7876066	1.0765914	0.7437902	0.595443	0.7559015	0.7701294	0.6570891	0.7727515	1.0753275	0.9525019	0.957287	1.347017	1.4554441
Ribosomal protein S9	1.0551718	1.036269	1.1493162	1.0201974	1.3652276	1.0644789	1.1844039	1.1514084	1.266103	1.1916987	1.1572877	0.8945466	0.8727618	1.0715595
Beta-tubulin, class I	1.345743	0.8566294	1.117432	0.956182	1.4076198	1.0628709	1.3852527	1.2803719	1.5404369	1.1870043	1.374863	1.1042604	0.9138164	1.1618305
Argininosuccinate lyase	1.1025302	1.2026094	1.0731585	0.8724884	1.0322863	0.7849556	1.1032883	0.8042617	1.0600874	1.295489	1.135157	0.8668316	1.0717185	1.1093702
Elongation factor-1 alpha	0.7427184	0.8893508	0.8544673	0.7734079	0.787115	0.8450148	0.7887963	0.7870261	0.8964949	0.8353572	0.8689488	0.9081252	1.0106614	0.9380194
Phase-1 RCT-55	1.1534506	1.0091838	1.1124452	1.3796122	1.28574	2.633546	1.135149	1.5350391	1.0821584	1.1189781	1.1290827	1.3078299	0.7137425	0.7682591
Macrophage inflammatory protein-1 alpha	1.2218894	1.4038032	1.3033266	1.638195	1.2652233	1.1574394	1.4291652	1.7488328	2.1291108	1.2596482	1.2338874	1.2911267	0.7908793	1.0198528
c-H-ras	1.2052535	1.0465447	1.132804	0.9331354	1.1069292	0.9797258	1.3339578	1.1885431	1.2420834	1.0740927	0.9608217	1.1733519	0.9296088	1.0100789
Multidrug resistant protein-1	0.8336811	1.4127753	0.7923596	0.8892252	1.0112568	0.8697436	1.082138	1.550949	2.2784832	1.3464176	1.2392595	1.3891288	1.2192514	1.2031754
T-cell cyclophilin	0.7842779	0.7432393	0.8265376	0.7259359	0.6650558	0.7434988	0.8161539	0.7321016	0.758857	0.7517646	0.9529529	0.7788428	1.1996833	1.1822731
Phase-1 RCT-185	0.7249858	0.7483657	0.8339102	0.9447574	0.7118444	0.8948133	0.8036889	0.6675405	0.8435878	0.7464	0.7109049	0.9795083	1.0367854	
25-DX	0.8239855	0.9955587	0.8126368	0.7639309	0.7742776	0.6594153	0.8308735	0.7430027	0.9571102	0.8511507	0.9950099	0.8263345	1.2868344	1.0639228
Ref-1	1.0130508	0.9716394	0.9941383	1.5013391	1.1506367	1.7462074	1.2874095	1.6848233	1.474214	0.9331438	1.0734626	1.0426857	1.0633229	
Apolipoprotein CIII	0.8926475	0.875975	0.9307526	1.0087755	0.6908777	0.8739696	0.973667	0.7728409	0.9612901	0.919155	1.119254	1.0734626	1.0392568	1.2722049

NADPH quinone oxidoreductase-1 (DT-diaphorase)	1.3016022	1.1030159	1.0716479	1.5835886	1.316442	1.9291593	1.6188277	1.5852265	1.8408571	0.8544312	1.1228857	0.9491565	1.08327	1.1104908
Pyruvate kinase, muscle	0.7598411	0.9789966	0.8111811	1.0383856	1.3005311	1.2887137	1.1669873	1.2623621	1.049505	1.2455558	1.1347831	1.2077923	1.0268922	0.9320446
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5)														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Table 35. Expression Data for 24 Hour Timepoint (1)																												
Compound-Dose (2)																												
Animal Number (3)																												
Liver Toxicity Necrosis Classification (4)																												
Gene Name (5)																												
0.9070634	0.9480701	0.7926477	0.8477036	0.9298717	0.9558975	1.0712345	0.6966337	0.76912	0.5239551	0.9292451	1.005316	0.9592632																
0.5921251	0.7871822	0.7093914	0.775439	0.7523058	0.7578949	0.8713903	3.7113097	2.4193583	2.9596164	1.2213765	1.0631752	0.8050485	1.3450782															
0.886428	0.9847434	1.0442108	1.0063747	1.4353818	1.6712931	1.4580658	1.597515	1.1693022	2.4984042	1.2320323	1.1039815	1.0824697	1.3069147															
1.0740062	0.9079414	0.9745604	1.0340985	1.0890789	1.1491843	0.9533254	3.7633471	2.9543152	1.678247	1.0809039	1.0063345	1.0674199	0.9449763															
0.94168942	1.1328342	1.1603804	1.1673063	1.1145576	1.013969	1.7933372	4.1413903	4.82356	4.0772585	1.0810305	1.0625975	1.4416826	0.8298467															
0.8549831	0.9350914	0.9640804	1.0063	1.0348563	0.829614	0.8231778	1.3464097	1.3486942	9.1781269	1.1166035	0.8869724	0.9174147	1.0454173															
1.0955491	0.8869591	0.8532358	0.8862108	0.9918908	0.8365974	0.9387686	1.5608697	1.1077926	1.7616754	0.9282573	1.076135	0.9790328	0.97044															
1.0577755	1.0924317	0.9450917	0.9915661	1.0604832	1.1017998	1.1809817	2.3242422	1.7900894	2.3341157	0.9507642	1.0198053	0.969893	0.9651043															
1.0817329	1.025011	0.9494043	1.0364025	1.44215	1.0917282	1.20424871	2.0424013	1.8915478	1.4971056	0.9201705	0.9508708	1.1421466	0.9221596															
0.8397044	0.9191499	1.2321131	0.8645302	0.752016	0.9808349	0.6368073	0.3981309	0.3620268	0.5283839	1.1732237	1.1429317	0.8775197	1.0870357															
0.9314401	1.177015	1.0667709	1.0850333	0.8057168	1.168088	0.7686782	0.3981309	0.3620268	0.5283839	1.1732237	1.1429317	0.8775197	1.0870357															
1.0583349	0.991496	1.0395169	1.0589399	1.1267045	0.9881783	0.9728008	1.8646452	1.6531951	0.6096987	0.9488504	1.0163027	0.9257058	1.1293125															
1.0587527	1.0252057	0.8899	0.9371175	1.021319	1.168324	0.8928621	0.8447272	0.7388033	0.7987577	1.0105406	1.0823545	0.9226728	1.0720388															
0.9362947	1.1707132	1.0164272	0.9082892	0.9060388	1.1553967	1.0494683	7.4772077	0.7077	9.646749	1.6741246	1.2367438	1.2538363	1.2177728															
0.6687773	0.7165173	0.8468016	0.7172374	0.5343522	0.6695687	0.4201693	0.3925192	0.3399565	0.289002	1.2729362	1.1302453	0.9740832	1.2142392															
0.8863987	0.9528114	0.9510727	1.4556915	1.027682	1.496058	2.6674852	2.3178746	3.1643207	0.82693																			

Phase-1 RCT-191	1.0833651	0.9738737	1.081395	0.9773905	1.577858	1.4074147	1.3583995	2.3215384	1.7151371	2.3961179	1.0358827	0.9574447	0.9776347	1.4443167
Phase-1 RCT-189	1.0450487	1.3901923	1.0421152	1.2881461	0.6534845	0.8842895	0.6498718	0.5597688	0.4622004	0.4814428	1.0085552	1.220528	1.1031125	1.1136184
Phase-1 RCT-179	1.1106943	1.2614957	1.0967388	1.091425	1.0577847	1.0796807	0.9477445	3.400019	2.5933642	2.2101238	1.0832627	1.0011777	1.0370518	0.8289163
Phase-1 RCT-152	0.8369955	1.8744584	1.1059141	1.0406197	1.2117712	1.1903574	2.1739435	1.8038615	2.3438167	2.026818	1.0375941	1.1481377	1.0084034	0.914087
Phase-1 RCT-123	1.1886034	0.9520908	1.0188792	1.0053678	1.0742905	0.9976288	1.0744553	0.8852586	0.9678442	0.9143729	1.0375941	0.9776238	0.9152082	0.9115186
Paraoxonase 1	0.7153009	0.5801933	0.8143748	0.7854477	0.4736557	0.7183936	0.6899841	0.5513834	0.5483122	0.3947786	1.0723425	1.1213222	1.1918526	0.8321396
Organic anion transporter 3	0.9488077	0.8956594	0.9092578	0.8788957	0.5053284	0.7804855	0.7515599	0.4497929	0.6878383	0.3839987	1.1012778	0.9735543	1.023828	0.9536997
N-hydroxy-2-acetylaminofluorene sulfoxtransferase (ST1C1)	0.8711833	1.3331565	0.9139637	0.9922501	0.5787132	0.9697285	1.182436	0.2549956	0.3152228	0.3613176	0.9549221	0.9815674	0.912648	1.0523893
Integrin beta1	1.1829019	1.2545536	1.0665374	1.0596626	0.8244765	0.9258602	0.962172	1.2875762	1.4128983	1.1690544	1.0813729	1.2109368	1.286248	1.0635471
Insulin-like growth factor binding protein 3	0.831884	1.1556784	1.1821109	1.1669447	0.7135422	0.9059209	0.9254208	0.6730096	0.8269937	0.5633904	0.8956429	1.0516661	0.9340481	0.8799999
ID-1	1.1944456	1.0437014	0.8694996	0.9944603	1.0585251	1.1374294	0.8786557	1.6034024	1.0984336	1.5095127	0.9398435	0.9273287	0.9904381	0.8907645
Hepatic lipase	0.832728	0.5824089	0.7604451	0.7242384	0.4572208	0.7791846	0.6205136	0.4828872	0.4433413	0.3662966	1.1180252	1.3373758	0.7376425	0.8900666
Heme oxygenase	1.0590959	1.2553945	1.2038336	1.5259259	1.2260115	0.9720785	1.3517003	2.2231264	1.9260212	1.1356058	0.9820411	0.9306974	1.2183154	0.8456153
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.713909	1.1697053	0.9976289	0.9830484	0.7818351	0.9292593	1.1171771	0.4699491	0.4953119	0.5670274	0.9641864	0.9728889	0.874571	1.0759777
Epidermal growth factor	1.0176045	1.7017363	1.4153259	1.3683574	0.9635668	1.0265025	1.0941824	0.8700575	1.1877998	0.9476621	0.9158884	0.9254838	0.9170199	1.0217446
c-myc	1.2002887	0.9308433	0.8984804	0.9068002	1.2421045	1.1198234	0.9720896	2.955168	2.4390032	1.5227859	1.087673	0.9170278	0.8689754	1.0511134
Carbonic anhydrase III	0.8531348	2.4647226	0.9153584	0.9614183	0.4754552	1.3172245	0.7988897	0.1128292	0.2098177	0.0978962	0.9267532	0.804558	0.6483697	1.9800402
Beta-actin	0.8457795	0.8832542	0.7846342	0.9267778	0.6435825	1.2586664	0.6400922	2.1455986	1.208875	1.763	1.0198948	0.5883343	0.7476708	1.155623
Gax (alpha)	1.0461246	1.0295255	1.037648	1.0487169	1.4329258	1.0628381	1.1881137	2.1796882	1.5512561	1.7595508	0.9815292	1.0086665	0.8919374	0.9499462
Alpha 1 - Inhibitor III	0.6426812	0.6523874	0.7239008	0.7438422	0.6527166	1.0028344	0.6043494	0.535313	0.4228615	0.3517941	1.266437	1.377275	0.7856618	1.1728784
60S ribosomal protein L6	1.0449053	1.0768906	0.809804	0.9494849	1.0966653	1.17257	1.3922592	2.109469	2.2923336	1.7147254	0.9693109	1.2186768	1.0584786	1.0086845
Phase-1 RCT-117	1.260836	1.488873	1.4134079	1.0557528	0.9472243	1.0875833	0.9922431	0.7309401	0.9177882	0.7440881	0.8857632	0.9398662	0.794009	1.0254443
Phase-1 RCT-102	1.0242358	0.7650408	0.7811276	0.9308548	0.5531166	0.5857812	0.3589508	0.4125425	0.2763322	0.3086535	0.9749873	1.0865925	0.508824	0.7869782
3-hydroxyisobutyrate dehydrogenase	0.8563317	1.263498	1.1132686	1.2752878	0.7108379	1.1313368	0.9569627	0.7314415	0.7112612	0.6382471	1.120981	1.0662285	1.1180098	1.2129534
ATPase inhibitor (rat mitochondrial IF1 protein)	0.9086809	1.523139	1.1182885	1.0891768	0.4391882	0.5848376	0.3957389	0.4425302	0.3983508	1.009877	1.1223562	1.1052583	0.982656	0.982656
Alpha-2-macroglobulin	0.7449276	1.6542026	0.7806153	1.420066	0.5058997	0.7663649	0.4627633	0.3604016	0.6775749	0.4719652	1.1477631	1.4129804	1.0401325	0.9729531
Phase-1 RCT-137	0.9648276	1.5168723	1.1995206	1.2559632	0.6895195	1.0140086	0.8744351	0.688283	0.885233	0.647727	1.1329114	1.2717985	1.0440713	0.9050218
Phase-1 RCT-252	0.6762628	0.831278	0.8637714	0.7857379	1.0141283	0.9032807	0.8484889	1.0348597	0.704273	1.0626857	1.1786468	1.0468917	1.0463514	1.0463514
Phase-1 RCT-65	1.0233536	0.9172255	1.0764174	1.0359195	2.0653486	1.6926691	1.6255807	1.4580855	1.8278515	1.7081406	1.021939	0.9481224	0.9519528	1.2516361
Liver fatty acid binding protein	1.0148991	1.3544377	1.1863532	0.9321395	0.4524413	0.6080684	0.6717466	0.3070056	0.3965497	0.2404319	1.0808522	1.4414902	0.9398744	1.0131907
Phar fatty acid binding protein	0.6687808	0.8536069	0.8474841	0.8190948	0.9328855	0.8940592	0.8712577	0.878952	1.2114036	0.572312	1.0945495	1.232482	1.1601917	1.0695795
Carbamyl phosphate synthetase I	1.0498438	0.9667493	1.0887262	1.0111239	1.3967819	0.9711213	0.8528442	1.1384608	1.2323552	0.2835472	0.925694	1.0649583	1.0430142	1.0870161
c-Jun	0.7892534	0.9569866	0.9584387	0.7100759	0.5987836	0.5899975	0.5991871	0.4767853	0.3951052	1.306471	1.3006419	1.3652812	1.1129129	1.8912673
Transhyalrin	0.7903845	0.9197916	0.7791598	0.7647079	0.8105843	1.2845099	1.1434147	2.256725	1.3961154	1.3114012	1.3006419	1.3652812	1.1129129	1.8912673
Aflatoxin B1 aldehyde reductase	0.947639	1.2171261	1.0184524	0.9488336	1.7260218	1.5003911	1.8018925	1.10744	0.9384079	1.5923443	0.9557681	1.0504875	1.1361768	1.3270931
Phase-1 RCT-15	0.7302875	1.1421229	1.0908562	1.1001841	0.5041788	0.6286917	0.6750658	0.7006372	0.7520742	0.4446287	0.9035857	1.0632257	0.8187211	0.8566466
Insulin-like growth factor I	0.9131659	1.0398428	1.0869092	0.8449752	0.7477124	0.9879446	1.0380545	0.5923152	0.420512	1.153714	1.1635811	0.9872644	1.0882746	1.0882746
Sodium/bile acid cotransporter	0.9131659	1.0398428	1.0869092	0.8449752	0.7477124	0.9879446	1.0380545	0.5923152	0.420512	1.153714	1.1635811	0.9872644	1.0882746	1.0882746
Organic cation transporter 3	1.0983392	1.0472007	0.898957	0.988372	0.9951441	0.9944876	1.1709911	1.2886361	1.355899	1.4426008	1.001565	1.1819994	1.0736699	0.9742056
Organic cation transporter 3	1.0983392	1.0472007	0.898957	0.988372	0.9951441	0.9944876	1.1709911	1.2886361	1.355899	1.4426008	1.001565	1.1819994	1.0736699	0.9742056
Gadd153	1.1202532	1.2809528	1.1410224	1.1584694	1.055819	0.9069458	1.0802016	1.5431488	1.6952058	1.5897092	0.906382	0.9684307	0.8976808	0.9358965
Phase-1 RCT-109	1.094703	1.2738577	1.0572506	1.0823812	1.1602619	1.0052907	1.195981	2.0017002	1.5736568	1.9258737	1.013805	1.2096984	1.0263801	1.1000054
Phase-1 RCT-88	0.8834708	1.040814	1.338429	0.9864395	0.8336058	0.9802125	0.9469894	0.8937986	0.9339541	0.898189	1.0867556	1.0979505	0.896956	1.0120294
Ubiquitin conjugating enzyme (RAD 6 homolog)	1.0871748	0.8748884	0.9181895	0.9248901	0.9684137	1.4982063	1.549052	1.1318078	0.9573855	1.0963624	1.028058	1.011227	1.028058	1.011227
Glucose-regulated protein 78	0.9587177	2.0454447	1.2520447	1.255087	0.5912622	0.5333984	0.8723528	1.26832	1.532798	2.1707742	0.8874235	1.1607352	1.1412001	0.883291
Ribosomal protein L13A	1.0554941	1.4414706	1.2252439	1.1640664	1.08293	1.1067629	1.281542	2.3670874	2.1578383	1.5810844	0.9783386	1.1213123	1.0636284	1.049043
Monocyte chemotactic protein receptor (CCR2)	1.1679579	0.9881861	0.8339516	0.938749	0.9540976	0.9509153	0.953972	1.2276454	1.1490845	1.374213	0.994109	1.0987456	1.0130831	0.9461094
Fas antigen	1.1997621	1.1113182	1.0798763	1.238301	0.6006684	0.8061969	0.7861884	1.2914145	1.3098786	0.981465	0.7593471	0.8963236	1.0946722	1.0946722
Calpain I heavy chain	1.0650861	1.3486049	1.2038094	1.1418315	1.5102588	1.2390724	1.3440775	2.282488	1.0395428	1.3612175	0.93792	0.9210932	0.9379831	1.1759462
Uncoupling protein 2	1.2507656	1.073871	1.144888	1.0422362	1.0126103	1.0237833	0.8182895	1.3008057	0.9405885	0.9984959	0.8809454	0.9842478	0.9005647	0.9186463

Phase-1 RCT-168	1.0053369	1.0414331	0.9554863	1.0007696	1.0402021	0.7692204	0.8769292	0.8597759	0.7851655	0.7220254	1.0482829	1.1402363	1.1048865	1.0036719
Phase-1 RCT-154	1.0284704	1.2491182	1.0622903	1.0341724	1.1362087	1.1200827	1.1436892	3.2134542	2.3379166	2.8159227	0.9737443	1.0869392	0.9941529	0.9363217
Superoxide dismutase Mn	1.2299312	3.5397284	1.670721	1.0311725	1.1768074	1.2985986	1.2736707	2.2236707	2.6636457	1.320855	1.0570674	0.968507	1.0107254	1.2044377
Phase-1 RCT-214	1.0103006	1.1333699	1.1462982	1.0020114	0.8293956	0.7476181	0.6585457	0.40149	0.8125698	0.40149	1.2329315	0.9380732	1.0429778	0.9783665
Phase-1 RCT-225	0.9475496	0.8552404	0.8522903	1.1290088	1.1569756	0.6091376	1.4242824	0.8452123	1.1055099	1.2475954	0.8390377	0.7503283	0.9781839	0.8781839
Phase-1 RCT-181	1.0266337	0.9184188	1.0248288	1.03	1.1418198	1.3074466	0.9403492	1.0853324	0.8594197	0.7284623	1.0027984	0.9606602	0.8368456	0.8557891
Nucleoside diphosphate kinase beta isoform	1.1748644	1.5727006	1.4162894	1.4557424	1.0615329	1.3283691	1.4231929	1.6000621	2.075579	1.4382755	1.0324707	1.1152891	0.9311169	1.1390778
Extracellular-signal-regulated kinase 1 (Ribosomal protein L6)	0.9546834	1.3452194	0.8689863	1.0330003	1.1509323	1.3652226	1.2381482	0.8093335	0.7866614	0.5854928	0.866482	0.8874506	0.7024323	1.8193605
Aldehyde dehydrogenase, microsomal p53	1.0606048	1.2100272	1.0429099	1.0023754	0.9289008	1.0371733	1.9163811	2.4374768	2.31947	2.1404097	1.0303498	1.1675267	1.0800574	1.1385733
Phase-1 RCT-239	1.1502441	1.2027552	0.9166404	1.038293	0.7866134	0.8437588	0.8255295	1.6350684	1.549507	1.4160074	0.9617775	1.1536652	0.9543483	0.9370994
Macrophage inflammatory protein-2 alpha	0.8892142	0.8250756	0.9007312	0.8756945	1.47695	1.122387	0.8478248	0.8278147	1.1579431	0.9492529	1.0110567	0.9096378	1.3171164	
IgE binding protein	0.96162	1.2063959	1.2135922	1.0830756	1.0711341	1.0484394	1.1240859	2.8009555	1.5657178	1.4802667	0.9296439	1.0333728	0.9884052	0.9315205
Phase-1 RCT-205	0.9537656	1.1162554	1.1351768	1.0017319	1.3038343	1.0860491	1.1784645	2.0368078	1.1205053	1.2887799	0.9922071	0.9552927	1.0428023	0.9253113
Melanoma-associated antigen ME491	1.1832527	1.1748369	1.0672234	1.111746	1.0148723	1.0271976	0.8852153	1.183064	1.1525198	1.0177659	0.8850345	1.1398335	1.1888117	1.1011051
Phase-1 RCT-242	1.2740754	0.8639044	0.8285046	0.9210899	1.1739111	0.8922104	0.9261866	2.7421343	2.072074	1.7595274	0.8358765	1.0192795	0.8450537	0.9359088
Enolase alpha	1.1172845	1.7132647	1.5081278	1.5581639	1.0209273	1.0935941	1.7353852	2.027912	2.179798	2.0758271	1.0282851	1.2636331	0.9454425	1.1175112
Thymosin beta-10	1.2781966	1.1220789	1.1501005	1.0699301	0.8798466	1.1026509	0.907828	1.5735146	1.3253361	0.9694758	0.9513483	1.0328171	0.9745186	0.9128686
Cofilin	0.9147836	1.1039462	1.0121367	0.8960105	1.3628459	1.4227997	1.2666644	2.004856	1.9089898	1.7015514	1.0773121	1.1267308	1.0939043	1.1557666
Carbonyl reductase	1.1866231	0.8861219	1.0360234	0.8265593	0.7411223	0.6681411	1.1369894	1.4837916	1.0603033	1.3819782	0.9991375	0.9812978	0.8882418	0.9825527
MAP kinase kinase	0.8666886	1.0469087	1	1.0866178	0.8417131	0.8823712	1.119899	0.9775976	1.0703953	0.7603983	0.962755	0.8489384	1.0266925	1.0075188
Phase-1 RCT-182	1.0408144	1.4499726	1.0450523	1.0314128	1.216004	1.2255662	1.5253831	1.4439982	1.3182863	1.4743998	0.9035086	1.1265129	1.0472312	1.1286196
Phase-1 RCT-72	0.9808678	0.9289482	0.9786701	0.8738393	1.3640453	1.0002836	1.4097186	0.506671	1.1688455	1.1948105	0.9500628	0.9733757	0.9486521	1.0914369
Ribosomal protein S8	0.9832621	1.8340534	1.2433833	1.2149522	1.2169771	1.4053344	2.206138	2.5998082	2.4200976	2.2287722	1.0324107	1.4452399	1.1289481	1.2236403
Proliferating cell nuclear antigen gene	1.2117277	1.0191394	1.0118906	0.961718	0.9794385	0.8792179	0.9541432	1.161188	1.2172091	0.7023077	0.9551933	0.9013112	0.8948703	0.8367055
Phase-1 RCT-192	1.2369323	1.4443008	1.2017136	1.0779869	1.4120708	1.6240517	1.9570532	2.3663833	2.7402613	2.067914	1.0858628	1.0200282	1.0667776	1.0074214
IKB-α	0.967266	1.0511838	0.8995905	1.0205237	1.2906218	1.1539489	1.2569281	1.9840299	1.5882162	1.4755849	0.9986046	1.2946097	0.8912198	1.2760468
Endogenous retroviral sequence, 5' and 3' LTR	0.8822105	1.0138741	0.589122	1.0823427	0.7625257	0.9590924	0.6334852	0.9938678	0.6176182	0.689525	1.232518	0.4768834	1.1455748	1.022733
Phase-1 RCT-37	0.9908742	1.1896893	0.9577071	1.0089909	1.3397677	1.2501497	1.5043254	1.1384115	1.2056628	1.2829539	1.0380094	1.1082013	1.0264148	1.0873383
Matrix metalloproteinase-1	0.8096614	1.1114557	1.2666249	1.1397347	0.8388416	0.9485998	1.032123	1.3651036	1.0617216	1.1747607	1.0981578	1.302976	1.2203318	1.1522845
Cyclin G	1.0386655	1.1650543	1.0677277	1.0814815	1.6631067	1.3296047	1.862763	4.1628447	5.219233	4.203121	1.0759602	1.0838652	0.8941499	1.0132829
DNA polymerase beta	0.9847466	1.2619385	1.159897	1.0941453	1.0308098	1.073167	1.099975	1.3808723	1.5133308	1.3679365	1.1280129	1.2439889	1.131299	1.102701
Phase-1 RCT-127	1.2380753	1.1713632	1.1332923	1.0051208	1.0135945	0.9849969	1.0537654	1.760293	1.8099358	1.359161	0.9493663	0.9927587	0.8875207	0.822957
Multidrug resistant protein-2	1.0052878	0.9425771	1.0912297	1.006105	0.7789322	1.038398	1.0772347	2.8270404	1.8727441	2.0099854	0.9282759	0.7926945	1.0984764	0.9789383
Ribosomal protein S9	1.1448232	1.3463068	1.1127572	1.2813442	0.8800685	1.0044005	0.9775681	1.8721043	1.6732374	1.1917888	0.9897832	1.0575777	1.0042931	1.0534278
Phase-1 RCT-12	1.0972854	1.1846565	0.8915474	0.9915949	1.1153711	1.0728441	0.8380462	1.1861581	0.8096998	1.2324103	0.8713572	0.8793325	0.8743188	1.0794019
Beta-tubulin, class I	1.0664338	1.3792162	0.9915622	1.0126032	0.8973706	0.9248406	0.8424181	1.6286935	0.7008052	1.4540414	1.0380564	1.0174049	0.7305253	1.2538594
Argininosuccinate lyase	0.8723022	1.050779	1.0508321	0.8694069	2.8383193	1.4502248	1.9327924	5.57864	4.1464057	2.867869	1.00485	0.8963179	1.2799237	1.178554
Elongation factor-1 alpha	0.7892303	1.0948519	0.9593608	0.9681041	0.7833365	1.029647	1.0621622	2.0918669	2.057847	1.3752365	1.0890957	1.1157844	1.2468987	1.3338935
Phase-1 RCT-55	0.8072829	0.8908684	0.8394074	0.8284411	0.9751847	0.8015461	0.989175	0.5973496	1.327144	1.7170528	1.0275701	1.0070853	0.8074127	1.1874329
Macrophage inflammatory protein-1 alpha	1.3505888	0.9158402	0.8723202	1.0605185	0.8927752	0.9258928	0.8537576	1.3285068	0.8618391	1.1024398	1.0068718	1.1206398	0.9337961	0.9030241
C-Hras	0.9218839	1.1451765	1.0243174	1.0140023	1.2371001	1.1121517	1.2343993	1.3059788	1.327043	1.2895405	1.0363495	0.9856399	1.1840507	1.0482715
Multidrug resistant protein-1	0.9503454	1.1687711	1.1595697	1.0658762	0.7772039	0.9947537	0.9486536	3.4321015	2.0541956	2.3662581	0.9083537	0.9137271	1.0225953	1.0110735
T-cell cyclophilin	0.9397931	1.3385779	1.1714432	1.1766971	0.8282061	1.0330414	0.94899519	1.5060042	1.20479	1.1610852	1.2674953	1.0652082	1.1426393	
Phase-1 RCT-185	0.7263861	0.733953	0.83491	0.9602943	0.8169107	0.9969682	0.907629	0.7562463	0.8287317	0.7280609	1.1390507	1.0350257	0.8967831	1.0487007
25-OH	0.9140533	0.9927501	0.894019	0.9292171	0.5866038	0.965022	0.5424061	0.739833	0.8522831	0.7223803	1.2626667	1.3260094	1.2735499	0.9572457
Ref-1	0.9185734	1.1970148	1.2041631	0.9080426	1.2696769	0.9478902	1.501708	0.7842405	1.5548192	1.6225113	1.0094053	1.0439547	1.030285	1.0586076
Apolipoprotein CIII	1.0957452	0.9154562	0.90213	0.8632187	0.6120905	0.7641302	0.517848	0.6241902	0.5941411	0.4123555	0.9432888	0.9851726	0.8685129	0.9814223

NADPH quinone oxidoreductase-1 (DT-diaphorase) Pyruvate kinase, muscle	0.9042904	1.364032	1.3053478	0.9907369	1.41	1.3512328	1.5495567	1.7295483	1.8655155	1.7247624	1.1085218	1.0395936	1.1150974	1.045258
	0.9989268	1.0069958	1.0461496	1.0201097	1.35975	1.0729209	1.2579149	1.1416324	0.7298476	0.8793267	1.0196491	1.0080576	1.0370488	0.9573476
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Table 35. Expression Data for 24 Hour Timepoint (1)													
Compound-Dose (2)	BEN 1000	BEN 1000	BAP 30	BAP 30	BAP 30	BUS 14	BUS 14	BUS 14	CAD 1	CAD 1	CAD 1	CAD 1	CAR 16
Animal Number (3)	2035	2035	2344	2344	2345	2346	1744	1745	1746	244	245	246	1856
Liver Toxicity Necrosis Classification (4)	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name (5)	no	no	no	no	no	no	no	no	no	no	no	no	no
Phase-1 RCT-78	1.012988	1.024871	0.988582	0.869375	0.835789	1.064394	1.070493	1.159213	1.025255	1.037231	0.999899	1.094985	1.093835
Gamma-actin, cytoplasmic	0.990496	0.916228	0.934731	1.012718	0.865103	1.397714	1.49204	0.664149	0.866678	1.111525	0.821857	1	0.882937
Main F/G	1.328429	1.235181	1.523413	1.041415	0.865323	1.397862	1.159479	1.121501	1.330951	1.757369	1.513295	0.715763	0.747741
Zinc finger protein	0.970028	1.024898	1.226573	1.045693	0.873321	0.873321	1.361043	1.672873	0.968483	0.907450	0.991553	0.948930	0.956291
Cathepsin L, sequence 2	1.027123	0.938621	1.261452	1.051287	1.623961	1.044016	1.156390	1.203049	0.839675	1.125495	0.820974	0.865957	0.957447
Gad45	1.024812	1.109884	1.367578	1.405723	1.649528	0.839598	0.752457	0.982105	0.943178	0.967762	1.109791	0.985353	0.910562
Phase-1 RCT-144	0.958214	0.969201	0.944003	0.905343	1.007073	0.901138	0.989283	0.951270	1.114927	1.060412	0.992162	0.925837	0.957048
Phase-1 RCT-145	1.008858	1.207221	0.971287	0.976584	1.070357	0.962411	0.986910	0.980446	1.153164	0.950136	0.974025	0.943193	1.010528
Phase-1 RCT-50	0.916575	0.901236	0.908150	0.947597	0.926605	0.765572	0.799406	0.975514	1.052533	0.975806	0.930669	1.122519	0.955951
Phase-1 RCT-92	0.955517	1.032126	0.785619	0.894061	1.091043	1.074838	0.916251	1.073294	0.879728	0.879728	0.928861	0.772517	0.792013
Phase-1 RCT-89	0.967568	0.860742	0.918744	0.906384	1.085955	1.212641	1.120274	1.030634	0.832976	1.113687	1.034882	0.764606	0.813516
14-3-3 zeta	1.042439	0.974378	0.927682	1.045692	0.932691	1.368163	1.148148	0.889012	0.735764	0.909730	1.047381	1.509541	1.539611
Dynamin-1 (D100)	0.904815	0.928192	0.857413	0.752479	0.966182	0.777904	0.845993	0.963396	1.147578	0.941752	1.177211	0.933551	0.830367
Insulin-like growth factor binding protein 1	1.285956	1.047478	1.250032	1.194948	1.141738	0.990807	0.911706	0.924262	0.788273	0.798452	1.224554	1.122050	0.895797
L-glutono-gamma-actone oxidase	0.809712	1.191183	0.728437	1.078761	1.401636	1.570923	1.570496	1.168753	0.746534	0.636584	1.597735	0.499448	0.886313
Ornithine decarboxylase	0.976526	0.915351	1.011963	1.028752	1.176845	1.179828	1.453431	1.042718	1.072781	0.912262	1.009704	1.751244	1.812553
PAR interacting protein	0.976018	1.005397	1.003856	0.990306	1.091397	0.982922	1.042708	1.001845	1.105293	1.097998	1.127147	0.976332	0.991821
Phase-1 RCT-128	0.931703	0.942154	0.938468	0.724823	1.087204	1.249152	1.042834	0.988745	0.920975	0.920975	0.931395	1.092820	0.927073
Phase-1 RCT-180	0.930039	0.898915	0.790917	0.990127	1.647229	1.506491	1.770506	0.805968	0.825072	0.825072	0.902005	0.931395	1.092820
Phase-1 RCT-182	0.951756	1.068924	1.012506	0.754012	1.001911	1.123726	1.044928	1.034863	0.678378	0.860167	0.860167	1.400307	0.974966
Phase-1 RCT-207	0.940285	0.989536	1.143769	0.925307	0.984129	1.066318	1.019465	0.982831	1.122164	0.864741	0.969673	1.781685	1.400307
Phase-1 RCT-213	1.043017	1.219431	1.064771	1.036719	0.975623	1.126195	1.264356	1.045321	1.203704	1.165003	2.099516	0.814437	0.987213
Phase-1 RCT-256	1.082227	1.093844	1.021899	1.036182	1.439128	1.399384	1.226436	1.048343	1.203704	1.062746	0.998908	0.987609	0.987531
Phase-1 RCT-258	1.024189	1.101763	1.056428	0.933669	0.995589	1.020126	1.001815	0.984834	1.042209	0.690048	0.754853	0.743154	0.915504
Phase-1 RCT-264	0.678637	1.156045	0.845838	0.620940	0.923088	1.235939	1.483652	1.240612	0.754853	0.778816	1.459562	0.805501	0.717202
Phase-1 RCT-271	0.923288	0.911206	0.798035	0.762863	1.025366	1.430625	1.258401	1.202755	0.877124	0.877124	0.877124	0.877124	0.877124
Phase-1 RCT-288	0.948135	0.940466	1.046783	0.752156	0.845326	1.424657	1.568842	1.028725	0.877124	0.877124	0.877124	0.877124	0.877124
Phase-1 RCT-38	1.171769	1.087648	1.106192	1.150098	1.511851	1.321670	1.158187	0.983148	0.861467	1.111262	1.875324	0.800541	0.617012
Phase-1 RCT-39	1.211967	0.943367	1.058175	1.093325	0.973535	0.907436	1.173183	1.002321	0.866479	0.986709	1.031075	1.133563	1.175102
Phase-1 RCT-68	1.037136	1.178753	1.242756	1.031947	1.117024	0.883348	0.876555	0.969425	1.118359	1.118359	1.217432	1.160604	1.207907
Phase-1 RCT-33	1.005163	0.983307	0.826028	0.845379	0.937638	1.280768	1.348479	1.231648	0.814542	0.851979	2.043347	0.637617	0.949313
Phase-1 RCT-36	0.986046	0.888350	0.884469	0.932502	0.985737	0.925017	0.910348	1.031365	1.036553	1.054395	1.390268	0.753457	0.987911
17-beta hydroxysteroid dehydrogenase, type 2	0.833005	2.808631	0.375757	0.945204	0.825272	0.591952	0.807943	1.889473	0.529868	0.851682	0.870257	1.163904	1.318192
Senescence marker protein-30	0.65751	0.817037	1.036478	1.401563	1.809052	0.870904	1.268149	0.972452	0.853567	1.058814	0.826187	0.807989	1.089430
Ribosomal protein S17	1.388568	1.735932	1.441191	1.086182	1.420947	0.922575	1.051248	1.060454	1.368773	1.403121	1.462434	0.720303	0.633003
Phase-1 RCT-83	1.145783	0.935922	1.184543	1.080424	0.961379	0.912268	0.713320	0.837121	0.869055	1.091354	0.975413	0.905584	0.943873
Phase-1 RCT-49	0.968526	0.935126	0.952386	0.905407	0.875527	0.980095	1.332679	0.903049	1.370246	0.855736	0.857086	0.881315	0.881315
Phase-1 RCT-48	0.777118	0.991498	0.652858	0.738370	0.989392	1.400528	1.253014	1.012184	0.835142	0.895828	0.848632	0.711652	0.746877
Phase-1 RCT-40	0.892868	0.881772	0.97268	0.946738	1.050266	1.237579	1.052713	1.139455	0.792522	0.635468	0.662982	0.427720	0.647689
Phase-1 RCT-296	0.887372	0.986421	0.355601	0.615223	1.287786	1.532642	1.181725	0.592969	0.833468	0.822982	0.927205	0.647689	0.530307
Phase-1 RCT-295	1.167717	1.581893	1.137210	1.048727	1.261728	1.342447	1.400715	1.113073	1.125728	1.125728	1.125728	1.143914	1.180493
Phase-1 RCT-291	1.03217	0.964336	1.106428	0.974430	1.237043	1.196005	1.218977	0.985883	0.738615	0.844166	0.821749	0.785608	0.813247
Phase-1 RCT-270	0.917407	1.043437	0.761096	0.735236	0.946509	1.365094	1.403998	0.965589	0.735066	0.751567	0.657985	0.725144	0.738041
Phase-1 RCT-241	1.169923	0.992903	0.820718	0.923807	0.870506	0.869917	1.080418	0.975635	1.173422	1.051228	1.087037	0.953454	1.005955

Phase-1 RCT-181	1.2391211	1.3852113	0.9640131	1.0533156	1.1203219	1.1333405	0.9850165	0.9112554	0.9419333	0.9386287	1.1082282	1.1898993	1.1308348
Phase-1 RCT-189	0.9118889	1.0496056	1.087905	0.8867375	0.996317	1.2876208	1.1085145	0.8649894	0.8595485	1.1802347	0.7720637	0.8566768	0.9018569
Phase-1 RCT-179	0.945356	0.9862577	1.2491074	0.9168077	1.1163371	1.4723371	1.1413467	0.8119224	0.8146477	0.9005458	1.0859321	1.0291111	0.9481888
Phase-1 RCT-152	1.0043366	1.215023	1.4748924	0.9913185	1.2602001	1.1685336	1.1325012	1.1412129	1.1489742	1.3356917	1.5676998	0.8305301	0.8178273
Phase-1 RCT-123	0.9126924	0.8678719	0.9168926	0.9341544	0.9342126	0.7620599	1.0421266	1.0412254	1.302592	0.9683829	0.9715666	0.9848003	1.0204797
Paraonase 1	0.8268871	0.8769804	1.5928524	1.3103069	1.730261	0.9387398	1.1294318	0.9785816	0.9880378	0.9188719	0.8333563	0.5920301	0.6769486
Organic anion transporter 3	1.0919858	0.9814556	0.7736386	0.9169813	0.939876	0.9774918	0.9133499	1.4680489	0.7496769	0.921734	1.2842573	1.218386	1.2057085
N-hydroxy-2-acetylaminofluorene													
sulfoltransferase (ST1C1)	1.2117546	0.9203163	1.0873955	1.1490673	1.3631811	1.0586367	0.9530183	1.2892161	0.6147558	1.0025032	0.7341777	0.7940046	0.7133854
Integrin beta1	1.0215065	1.0633187	1.6090201	1.0377718	0.8962543	1.1605645	1.0938702	0.9992426	1.0896685	1.2827763	1.0638644	1.04303	1.1443281
Insulin-like growth factor binding protein 3													
ID-1	0.9452874	1.1773409	0.8141185	0.7554984	0.7933477	1.1176977	1.1892314	1.0734738	0.5480973	0.8539287	0.8597077	0.894198	0.8060978
Hepatic lipase	1.107624	1.1194537	0.962678	0.9509592	0.7893555	0.9680063	0.8737182	0.8701889	0.8764985	0.8313932	1.5675051	1.0410495	1.8455994
Heme oxygenase	0.8916272	0.8840803	0.5502192	0.6353822	0.9645402	1.5011321	1.5903259	0.9803594	0.7848307	0.8704983	0.9710074	0.3841917	0.5046774
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.9921967	0.8158662	1.2198147	0.935846	1.0112437	0.9836838	0.7229878	1.051673	1.1534878	1.2350689	1.2844899	0.8273408	0.7933779
Epidermal growth factor													
CMYC	1.0062885	0.9628756	1.019853	1.1260031	1.2230359	0.9409531	0.8090819	1.0728408	0.7312239	1.0191307	0.7873164	0.7709897	0.7217221
Carbonic anhydrase III	1.5598979	0.9436674	0.9049939	1.1163325	1.0106174	0.8764173	0.789813	1.0646371	1.2324198	1.3430192	1.0328853	0.9319288	0.9024622
Beta-actin	0.9884758	0.9544398	1.1770171	1.000782	0.7801999	0.8303317	0.7358411	1.0009801	0.8956041	0.8340889	1.0036846	1.1224029	1.085955
Bax (alpha)	0.5169383	0.6469516	0.2161613	0.5853369	1.2993048	0.8961489	1.1638929	1.0423691	0.8635505	0.5319681	0.7357204	1.1452497	1.6406586
Alpha 1 - inhibitor III	1.0013711	1.2273529	0.7547822	0.8872546	0.6851123	1.9888988	1.5665321	0.4525807	0.6335506	1.0248864	0.8814244	2.2156713	1.9706372
60S ribosomal protein L6	0.9843578	1.1754037	0.8588865	1.0425696	0.8676918	1.2283171	1.1650804	0.9752275	0.7871585	0.8634517	0.9658935	1.4134742	1.2759356
Phase-1 RCT-117	0.8131611	0.7832114	0.8852138	0.8821876	1.1774285	1.2937964	1.0942562	1.0768976	0.9467462	0.9731745	1.5153639	0.8710781	0.8265908
Phase-1 RCT-102	0.878556	1.2696829	0.9633036	0.7564002	0.9792127	0.8468969	0.7727978	0.9934201	1.2410946	1.0635422	1.5582509	1.1237067	0.8045832
3-hydroxyisobutyrate dehydrogenase	1.045929	1.0054173	0.4328968	0.5704886	0.7306068	1.2747341	1.3220021	1.1973782	0.5922538	0.709641	0.5626305	0.4887988	0.4448672
ATPase inhibitor (rat mitochondrial IF1 protein)	1.0076114	0.9365832	1.1205114	0.859881	1.2833178	1.2081124	1.0479382	1.1927274	0.8547316	2.2619987	0.958683	0.8012401	0.8007658
Alpha-2-macroglobulin	0.824814	0.908179	1.3100915	1.0346922	1.259272	0.8497443	0.8647223	0.9305126	1.0982267	1.2821177	2.0782268	0.488459	0.5625629
Phase-1 RCT-137	1.3955147	0.9503051	1.1088783	0.8971185	0.7230533	1.3414469	1.4487567	0.91367	0.6830261	0.3540675	0.4690623	0.6272326	0.8874352
Phase-1 RCT-252	1.2086991	0.930078	0.9844798	0.9373319	1.2014778	1.5320246	1.5328465	1.2714103	0.8471698	0.9600238	1.0444139	0.5969433	0.6191209
Phase-1 RCT-65	0.8240685	0.9214063	0.7293817	0.7126286	1.1433077	1.15678	1.5427232	1.0912942	0.7861117	0.875398	1.4913071	0.5085028	0.6548359
Liver fatty acid binding protein	1.1758767	1.09439	1.0594844	1.2147654	0.9552761	1.2402506	1.0828404	0.9326206	0.7236796	0.9002927	0.7596481	1.5458307	1.6128478
Carbamyl phosphate synthetase I	0.8323677	0.9996049	0.7308769	0.7608122	0.8945148	0.9933388	1.0276881	0.8224365	0.6949953	0.8177401	1.6706816	0.4792838	0.5505199
C-Jun	0.7744606	0.8618008	0.757057	0.7488923	1.2525837	1.0823783	1.7122058	0.9929828	0.7354301	0.9489195	1.4618624	0.4984423	0.6349035
Transferrin	1.1467885	0.960893	0.850884	0.8712705	0.7715727	1.2298893	0.7489471	1.0752187	0.8397844	0.9237731	0.8603768	1.8101414	1.3939544
Aflatoxin B1 aldehyde reductase	0.6881942	1.1540821	0.8122838	0.8442909	0.8193464	0.9507796	1.3673004	0.8813847	0.6311055	0.5103184	0.5799006	0.6311048	0.7395544
Phase-1 RCT-15	0.8787551	4.0461297	1.920527	1.4719589	1.7218351	0.9146199	0.8438531	1.0021297	0.8639818	1.0473567	1.395244	1.0457866	1.3519762
Insulin-like growth factor I	1.0634	1.1517425	1.064215	1.1784416	1.1464139	1.1803362	1.2139361	1.0378957	0.8841618	0.8426145	0.9099756	1.3704808	1.4056506
Sodium/bile acid cotransporter	0.8585674	1.1589289	0.8507893	0.8384676	0.8717047	1.0127659	1.1894858	0.7864628	0.5257285	0.8004057	0.8192999	0.6362239	0.6363815
Organic cation transporter 3	0.6436162	1.0852164	1.7685418	1.3881147	1.7617544	0.8062378	0.853998	1.1589404	0.4920412	0.8253328	1.1542131	0.8335502	0.8425593
Gadd153	1.0113645	1.2215718	1.2795233	0.9607067	1.1549846	0.8610155	0.9219981	1.0306381	1.0415475	0.9418556	1.4128814	0.8542267	0.8987916
Phase-1 RCT-109	0.9680713	0.9600416	0.8923781	1.0003737	0.830289	0.9854817	1.0377622	1.0283177	0.71057	0.7239225	0.9012818	1.5213019	1.3283073
Phase-1 RCT-88	1.0720357	1.268072	1.1660494	0.9145849	1.0070486	1.2585077	1.1834601	1.0631162	1.6612374	1.5067303	2.16872	0.9878065	0.828809
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.9462617	0.9951761	0.9501799	0.9565228	0.8197932	0.6442019	0.7693523	0.9494334	1.3278424	0.9645208	0.9035673	1.0077969	0.9875003
Glucose-regulated protein 78	0.8596546	1.0171196	1.1927505	0.944146	1.0741978	0.8639144	0.9690218	1.0268016	0.9754465	1.0077807	1.0897999	1.1350448	1.2170075
Ribosomal protein L13A	0.9678759	0.8183489	0.9595127	1.1108341	1.1273624	0.9367733	0.9301953	1.7200215	1.3762052	1.6751924	1.071681	1.23007	1.3411307
Monocyte chemoattractant protein receptor (CCR2)	1.2218935	1.5729314	1.2772131	0.9269971	1.0719514	0.988663	1.0961248	0.9507009	1.1807262	1.0695607	1.209073	1.0612388	0.8486543
Fas antigen	1.0384957	0.9605687	1.2497525	0.9714974	1.0991983	0.8782294	0.9790759	0.9598336	0.9598095	0.8292723	1.0711172	1.1801388	1.0922614
Calpain I heavy chain	0.9228005	1.0511218	1.02494	0.9582462	0.8082391	1.5808765	1.2360479	0.9358684	1.0659228	0.986289	1.1449132	1.4370484	1.2802213
Uncoupling protein 2	1.2490076	1.1615725	0.8451143	1.0772192	0.9711416	0.9331496	0.8030328	1.238004	1.1581111	1.4105617	1.253714	1.2858303	1.3621274
	1.0701581	1.1689075	0.9360005	0.9242452	0.7995296	1.0480435	0.8878852	1.1613408	0.9100074	1.1839678	1.0806512	1.0028628	1.1287041

Phase-1 RCT-168	0.9422562	0.9140951	0.8567894	0.9469474	1.0212011	1.1483575	1.0962225	1.1304932	1.1275396	1.0275257	1.3378147	0.7474626	0.8162275	0.8237702
Phase-1 RCT-154	1.0047576	1.0600618	1.0376146	0.9975066	1.128928	0.6096191	0.9438074	1.0015068	1.2774769	1.0318981	1.025087	1.0600232	1.0306317	1.1097126
Superoxide dismutase Mn	1.2432164	1.8476307	1.5030982	1.1641678	1.1524428	1.3086507	1.04525	1.1474055	1.0890474	1.3737698	1.2037665	1.1438038	1.0886627	1.214644
Phase-1 RCT-214	0.9527875	0.9204301	0.8425432	1.0543032	1.0770663	1.4979415	2.3256395	1.1197827	1.215907	0.9095075	1.2023371	0.9574882	1.1108873	0.9547827
Phase-1 RCT-225	1.2174127	0.9831747	1.7392437	2.1131594	1.3423799	0.9381728	1.2363935	1.1933484	0.960947	0.9440668	1.0040096	2.1085238	1.9944754	1.0218359
Phase-1 RCT-181	1.1220124	0.9842751	0.8080831	0.8735644	1.0180587	0.8815234	1.0245229	1.0217246	1.1124297	0.9637182	1.0777204	0.7935016	0.7499104	0.990494
Nucleoside diphosphate kinase beta isoform	1.0558496	1.2792239	0.7941501	1.0832835	1.2344192	1.1649014	1.2285272	1.2170374	1.4073727	1.4542128	1.516178	1.0686402	1.0967051	1.1948473
Extracellular-signal-regulated kinase 1	0.5709716	0.6907105	0.3225278	0.6977566	1.1630968	0.9517077	1.1540576	0.9786702	0.9065967	0.8098768	0.8598487	1.284846	1.6813183	0.9582825
(Ribosomal protein L6)	1.1919546	1.4806808	1.3701717	0.9899895	1.2543863	1.3254699	1.2997738	1.01772	1.1154768	1.2342839	1.355958	0.7672725	0.7986205	0.7714483
Aldehyde dehydrogenase, microsomal	0.9563665	1.2111809	0.9944133	0.9103261	0.9179897	1.3297373	1.1775002	1.1686684	0.7848404	0.8889172	0.9337986	0.8889172	0.9337986	0.9089784
p53	0.9565139	0.8802603	1.0004919	0.9028463	0.9886983	1.3718901	1.5228194	0.943315	0.8390218	0.8548355	0.9701474	0.9881423	0.9538426	0.8721052
Phase-1 RCT-239	1.0702546	1.1132203	0.817179	0.907521	0.8635912	0.7349997	0.770281	0.9328992	0.9949058	0.8875659	0.9455234	1.1297386	1.073292	0.9630342
Macrophage inflammatory protein-2 alpha	0.9790421	0.8847329	1.125653	1.0495106	0.7755672	0.9853954	1.1093072	1.0592467	1.0709677	0.908618	1.0554452	1.4427378	1.3881137	1.5386143
IgE binding protein	1.0041564	0.9184637	1.1317782	0.9805388	1.0442654	0.8431575	0.7832122	1.0193554	1.5480868	1.7091323	1.5237262	0.9268111	0.9124182	0.933777
Phase-1 RCT-205	0.9609811	0.9060189	1.0633568	1.084425	1.0567652	0.8926227	0.9525448	1.002539	1.2277259	1.3401694	1.0983773	0.8433959	0.8383699	0.8478423
Melanoma-associated antigen ME491	1.107526	0.869632	0.8674341	1.1272734	0.7974567	0.7924301	0.7988351	0.9487007	0.9692444	0.9559595	0.8000151	0.9739546	1.0057329	1.2318835
Phase-1 RCT-242	1.0072429	0.9629899	0.9170792	1.0137084	0.8167439	0.6771247	0.7451775	0.8567058	1.4282796	1.1295344	1.0839249	1.1610334	1.0551423	0.8818344
Enolase alpha	0.9665234	1.1041591	0.9285306	0.996917	1.0612432	1.1908118	1.2814697	1.3597603	2.4880288	2.1044474	1.5376272	1.3292711	0.9659459	0.9293606
Thymosin beta-10	1.0507609	1.218369	1.1293613	0.9054156	0.9386566	1.5576366	1.2378267	1.1256176	1.001616	1.0721028	1.1750342	1.0561879	0.8405904	0.894647
Carbonyl reductase	0.920177	1.0581415	0.9782915	0.8712325	1.0260045	1.0805206	1.1256176	1.001616	1.0721028	1.1750342	1.0561879	0.8405904	0.894647	0.894647
MAP kinase kinase	0.990534	0.959385	1.054706	1.0237094	0.9666029	0.9855207	1.1195915	1.053322	0.6911108	0.6964658	0.7612382	1.125639	1.1323282	1.18233
Phase-1 RCT-162	1.0882081	1.0474654	0.9393023	1.0700102	0.9838817	1.1069898	0.9838817	1.0392337	1.1035789	1.107585	1.1923879	0.9295715	0.9309032	0.9847314
Phase-1 RCT-72	1.2283758	1.4276313	1.1163574	0.9613192	1.1278867	0.8837471	0.9814696	1.0343021	1.1153677	1.1107585	1.1923879	0.9295715	0.9309032	0.9847314
Phase-1 RCT-12	0.9899353	0.9517062	0.8425267	1.0421968	0.920285	0.7625921	0.7456297	0.9563426	1.2187343	1.2369455	1.0925539	0.9602623	0.9724191	0.8551151
Ribosomal protein S8	1.4045637	1.1773852	1.5392064	1.0530316	1.3560611	1.2051417	1.2571408	1.1210288	0.9663698	0.8708354	0.9423936	1.0233011	1.0262103	0.8907842
Proliferating cell nuclear antigen gene	0.9915175	0.9149498	0.904984	0.9237663	0.9369112	1.8519844	0.8533965	0.9863698	0.9863698	0.9863698	0.9863698	0.9863698	0.9863698	0.9863698
Phase-1 RCT-192	1.0741752	1.281383	0.9390487	1.004074	1.1469207	0.942441	1.0434508	1.0452284	1.0989672	1.0036055	1.4271226	1.0091766	0.8968343	1.1264547
IKB-a	0.8701468	1.0878115	1.1292201	0.9829286	1.1370168	0.9275752	0.9655762	0.9167865	1.1221476	1.2289935	1.2589473	0.8749204	0.7559072	0.8081187
Endogenous retroviral sequence, 5' and 3' LTR	0.9853415	0.8941175	1.0212339	1.6538879	1.4996394	0.9137799	1.2908863	0.8435459	0.5731911	0.8326342	0.7410591	1.5978316	1.1344993	1.4405288
Phase-1 RCT-37	1.0841764	1.2108717	0.982836	0.938845	1.1379498	0.9750233	0.9268447	0.953153	1.223352	1.2527728	1.2397865	0.9342423	0.8355678	0.9267883
Matrix metalloproteinase-1	1.3279779	1.2292411	1.424628	0.9722884	1.1666628	1.0763032	1.1874627	0.8445419	0.7758035	0.9761224	0.9065605	1.189289	1.0646465	1.1838274
Cyclin G	0.964665	1.0430251	0.9929118	1.1240302	1.1363571	0.8723437	0.9866107	0.9710991	1.827208	1.1986646	1.1512	2.8839307	2.176605	2.3467317
DNA polymerase beta	0.9544553	0.9558873	1.0697848	1.0468889	1.2621326	0.9162179	1.1857452	0.9208665	1.2422088	1.1388307	1.226051	0.8252841	0.8986716	0.9060223
Phase-1 RCT-127	0.9143099	1.0351822	1.0427216	0.8638739	0.9552475	0.7181895	0.8335391	0.9909289	1.25508	1.130625	1.2442247	0.9875378	0.9988158	0.9412854
Multidrug resistant protein-2	1.3039882	1.1755364	1.8075417	1.4280765	0.9500036	1.1236757	0.9125143	0.9161109	0.6828693	0.8683397	0.7585366	1.6322826	1.3965453	1.8623515
Ribosomal protein S9	0.7855111	1.1152974	1.091868	0.9348629	1.156287	1.2270125	1.7409263	1.1375246	1.098687	0.8357224	0.9124191	0.9660114	0.9740847	1.0761544
Phase-1 RCT-12	1.1247871	1.1875986	0.8599771	1.0096121	0.9283074	1.0116947	0.9452896	0.8918211	0.9285766	1.2656366	1.3455998	1.1222386	1.2873701	1.067461
Beta-tubulin, class I	1.2848592	1.6821	0.7728321	1.2201084	1.1359999	1.6063566	1.6603278	0.8051437	0.9105088	1.0500515	1.7813461	1.2118707	0.839521	1.0667361
Argininosuccinate lyase	0.9435762	1.5382729	1.0327706	0.9564189	0.9743807	1.4231238	1.6798581	1.1152531	0.8062968	0.7175926	0.8192843	0.9036452	1.0233389	1.0553256
Elongation factor-1 alpha	1.313477	1.2903754	1.6832963	1.0348657	1.1669741	1.2259861	1.2377819	1.0568441	0.7354469	0.9957939	0.8099166	0.8684222	0.8408044	1.0197695
Phase-1 RCT-55	0.9746494	0.9255465	0.9228968	1.1036797	0.877193	0.7037122	0.6634403	0.9369386	1.1539267	1.1409793	1.0249784	1.1441793	1.029413	0.9226372
Macrophage inflammatory protein-1 alpha	0.9467008	0.9346252	1.010685	1.0178694	0.8506803	0.8989736	0.988917	0.9221086	0.9112554	0.8846643	0.8426807	1.1816934	1.1296769	1.096676
c-Hras	1.104404	1.2867297	1.1091162	1.0370576	1.000762	1.1226699	1.1201024	1.0224457	0.6681131	0.8430361	1.1584261	1.2512568	1.2708756	1.3148922
Multidrug resistant protein-1	1.1263776	1.1982965	1.5286286	1.2348312	0.9802235	1.0686847	0.9309351	0.8738104	0.7425687	0.7753388	0.681893	1.7290249	1.5513285	2.077706
T-cell cyclophilin	1.0441507	0.8825584	1.076737	0.9888333	1.2856677	0.9594932	1.1800453	1.0234853	1.2490038	1.1140512	1.2784155	0.7704579	0.7977839	0.8579325
Phase-1 RCT-165	0.7975301	1.0195429	0.8927669	0.7917763	0.9982331	1.169941	1.0961187	1.0705457	0.8489767	1.0078425	0.6739773	0.7854829	0.7696208	0.7696208
25-OH	0.8781971	0.9413058	1.5600784	1.040287	1.2409428	1.1315013	1.0382785	1.1153094	0.8624517	0.9579042	1.5592701	1.027093	1.0700144	1.0955297
Ref-1	1.1059946	1.2715389	1.5023463	1.5066134	1.5721827	0.9470246	1.1321822	1.0505832	1.0907462	1.0409725	1.0307381	1.4107288	1.4345379	1.3571587
Apolipoprotein CIII	0.6405088	0.9026303	1.258718	0.9488799	1.2317374	1.260568	1.1291071	0.990823	1.0819147	0.746855	0.8102197	0.8401558	0.8283916	0.8595325

NADPH quinone oxidoreductase-1 (DT-diaphorase)	1.1300856	1.706858	3.7278883	3.0025556	3.550085	1.1209266	1.1346557	0.8942895	0.9439851	1.2331557	0.8850905	1.4759272	1.4413787	1.6117879
Pyruvate kinase, muscle	1.079581	1.0017515	1.1539986	1.0684897	0.9974641	1.4432871	1.2499237	1.1480552	1.0774521	1.0461551	1.4214342	0.8044874	0.8092774	0.7775644
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 hr: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Table 35. Expression Data for 24 Hour													
Timepoint (1)	CHCL3 250	CHCL3 250	CHCL3 250	CHCL3 250	CHCL3 500	CHCL3 500	CHCL3 500	CHCL3 500	CHCL3 500	CHCL3 500	CHCL3 500	CHCL3 500	CHCL3 500
Compound-Dose (2)	1624	1625	1626	1627	1628	1629	1630	1631	1632	1633	1634	1635	1636
Animal Number (3)	no	no	no	no	no	no	no	no	no	no	no	no	no
Liver Toxicity Necrosis Classification (4)	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name (5)	Phase-1 RCT-78	Phase-1 RCT-78	Phase-1 RCT-78	Phase-1 RCT-78	Phase-1 RCT-78	Phase-1 RCT-78	Phase-1 RCT-78	Phase-1 RCT-78	Phase-1 RCT-78	Phase-1 RCT-78	Phase-1 RCT-78	Phase-1 RCT-78	Phase-1 RCT-78
Gamma-actin, cytoplasmic	0.6371437	0.8716484	0.7244269	0.956764	0.8040589	0.7710564	1.0628641	0.8607835	0.9622628	1.0011305	1.2277693	0.9451106	1.076718
Malrin F/G	1.3966328	2.0080492	4.820458	1.6725786	3.1347418	0.672366	1.0166708	1.0337392	1.1692146	1.4031113	1.029407	0.6282655	0.8338799
Zinc finger protein	0.3705433	0.8586965	0.0109924	0.9700947	0.6012951	0.4644135	1.5985839	1.5319067	1.3103834	1.3676157	1.3103834	0.9483665	0.9101452
Cathepsin L, sequence 2	5.140148	1.0743978	2.2721379	1.4661269	2.5985198	3.465775	0.9695364	0.9464596	0.8920125	0.9239103	1.3234811	1.0802093	0.9622273
Gadd45	1.1611915	1.8056684	5.1170006	2.445474	3.539198	2.7840476	1.8886818	0.974179	0.9772522	0.9147419	1.9529702	0.9270876	1.2141223
Phase-1 RCT-144	2.4178674	0.8442409	1.6848092	1.0283352	1.6095598	2.0979147	0.8886619	0.9012383	0.7240961	0.9829873	1.5217386	1.1479658	1.2180996
Phase-1 RCT-145	2.334774	1.151626	1.4679184	1.0791944	1.841662	2.381963	0.759324	0.9438536	0.9757195	0.978453	0.9817358	0.8553296	0.8575144
Phase-1 RCT-50	1.9635876	1.3002892	1.9685524	1.2414786	1.8897154	2.0073514	1.0311143	1.0468523	1.2440423	1.1851947	1.133658	1.0370014	1.0323118
Phase-1 RCT-92	2.9030688	1.0186405	1.5215645	1.0288959	1.4064637	2.2627712	1.0640138	1.0921773	1.227109	1.1130536	1.4127111	1.238596	0.8719693
Phase-1 RCT-89	0.4892659	1.028068	0.4821187	0.7895095	0.574755	0.4368825	1.0119021	0.8432889	1.1401483	0.8841839	1.0948187	0.7579902	0.9846339
Phase-1 RCT-89	0.4317204	0.766854	0.4762353	0.8087208	0.532439	0.4688516	0.8273964	1.1753924	0.9550012	0.7726266	0.6823449	0.5829307	0.9435955
14-3-3 zeta	1.1644213	1.3859208	1.9416331	1.212394	2.0705886	1.3541808	1.3820266	0.9678749	1.5040133	1.5475848	1.3681268	0.9423689	0.907474
Dynamin-1 (D100)	0.6800692	0.7518817	0.6401772	0.9444392	0.8206269	0.7895032	1.2720165	1.0765752	0.9836102	0.8106828	0.7902838	1.1144723	0.8485215
Insulin-like growth factor binding protein 1	4.683118	1.3476887	2.9222531	1.3186442	1.984494	2.4675303	1.6317682	1.6031494	1.5778029	1.2130103	2.0580611	0.6197209	0.8938901
L-glutono-gamma-lactone oxidase	0.2773432	0.5586789	0.2578902	0.3634121	0.2624145	0.1553042	1.2909374	1.6286693	1.0194757	1.0674201	1.3262844	0.6216847	0.5810655
Omitrin decarboxylase	1.5195441	1.5541869	1.4205314	1.1245701	4.25675	0.8829816	1.6334985	1.7626339	3.480216	3.6108851	2.2009513	1.3402053	0.9507311
PAR Interacting protein	1.8909643	1.2167732	1.3992258	1.0470545	1.5827543	1.8112822	0.7698445	0.9628226	1.0083088	1.0599166	1.0587555	0.9231157	1.023355
Phase-1 RCT-128	0.4121503	0.805028	0.3623458	0.9482043	0.731676	1.0153035	1.1230191	1.1015064	1.0157777	0.9033317	0.8764695	0.543216	0.7163748
Phase-1 RCT-180	1.5412409	1.4006307	1.5051446	1.2572634	1.8267534	1.7213008	0.9861962	0.9469357	0.9715555	1.038763	0.9459478	1.6229701	1.5380939
Phase-1 RCT-182	0.519241	0.8218003	0.8683694	1.038103	0.8816375	0.8025111	0.7888264	0.8853328	0.8484109	0.8879759	0.8455561	0.770283	1.2042272
Phase-1 RCT-207	1.2676375	1.1690223	2.3826344	1.4618077	2.2590778	2.4690695	1.276991	0.9970184	1.117147	1.1248684	1.0781369	1.2034016	1.0887779
Phase-1 RCT-213	1.5956331	1.3910927	1.9398804	1.2954518	1.8307228	1.6998764	1.4765493	1.1235564	1.2339238	1.4309113	1.2300916	1.1542993	1.1003022
Phase-1 RCT-256	0.308325	0.7697096	0.3920282	0.6655492	0.3803094	0.303441	1.7339086	1.9600946	1.5241872	1.4906304	1.5264934	0.5318754	0.7647484
Phase-1 RCT-258	1.6582546	1.3462856	1.7928323	1.4302068	1.5394285	1.6594333	1.0826582	0.985078	0.9363327	1.128812	0.9594027	1.1790006	0.9807834
Phase-1 RCT-264	0.4013032	0.8789263	0.5101573	0.5851339	0.4857754	0.5135371	1.1576392	0.985078	1.1975732	1.1518249	1.3116298	0.5811398	0.743714
Phase-1 RCT-271	0.541374	0.7308545	0.6158222	0.6476788	0.713516	0.6503229	0.977524	1.153234	0.9167817	0.7956316	0.8888957	0.9208229	0.7897346
Phase-1 RCT-288	0.8263995	0.7099097	0.4452559	0.7665908	0.6038635	0.5043669	1.35154	1.351984	1.293204	1.2750105	1.0913733	0.7306807	0.8442872
Phase-1 RCT-38	0.3242101	0.8159399	0.4129187	0.656195	0.4911781	0.3285534	1.4207782	1.7188928	1.3251982	1.2376769	1.240316	0.4940798	0.6773579
Phase-1 RCT-39	1.3694326	1.2972132	1.7219309	1.3727522	1.3037801	1.2684821	1.6215599	1.415503	1.349628	1.1377786	1.0491626	0.8174416	0.967948
Phase-1 RCT-68	1.5669899	1.0758537	1.2689751	1.235216	1.7443765	1.3422408	1.281139	1.0250171	1.528634	1.362027	1.2501867	1.1038714	0.9460027
Phase-1 RCT-33	0.4801861	0.9778237	0.5947639	0.6779819	0.4994276	0.2723433	1.0816144	1.0740836	1.060955	0.9827216	1.0857751	0.8753851	0.70147
Phase-1 RCT-36	0.6815824	0.8801761	0.6348202	0.8891197	0.6865828	0.4888246	1.0537292	1.0967163	1.0812849	0.8569398	1.1193799	1.18202	0.8520767
17-beta hydroxysteroid dehydrogenase, type 2	0.3040897	0.5958868	0.4011078	0.4407222	0.3742735	0.2491644	0.4544741	0.4987307	0.3944599	0.3572585	0.440854	0.7231686	0.9691052
Senescence marker protein-30	0.1005499	0.4433828	0.2857176	0.1773102	0.1291306	0.0696802	0.9363067	0.776018	0.7185239	0.5580232	0.3917894	0.570138	1.2732934
Ribosomal protein S17	2.3944237	1.679237	1.9199592	1.7478137	1.5835245	1.6732877	1.0619301	1.0674578	1.1445694	1.4768997	1.2568531	0.7611532	1.3734509
Phase-1 RCT-83	0.7634692	0.6565188	0.387365	0.421537	0.26431	0.2852865	0.4715055	0.5791216	0.5028298	0.9634665	0.3217674	1.112734	0.9115802
Phase-1 RCT-49	3.5507123	0.9775521	2.171106	1.2589095	1.7201018	1.2135832	0.9798784	1.041376	0.9428289	0.9833307	1.0938528	0.7877361	1.1182084
Phase-1 RCT-49	0.8570442	0.905743	0.7771382	0.7941555	0.8424852	0.6073359	0.9775663	0.7984275	1.2208415	0.9458223	1.0503836	0.7335326	0.5865915
Phase-1 RCT-40	0.6208167	0.8348457	0.6589597	0.7388508	0.5661494	0.4601151	0.8359762	1.0648195	0.960693	0.9420123	0.64845	0.7344165	1.2431074
Phase-1 RCT-286	0.1616081	0.3289076	1.999198	0.3021776	0.2243825	0.1470616	0.8860239	1.3135695	1.0867846	1.3487991	1.2115361	1.0185341	0.8289453
Phase-1 RCT-295	1.7048194	1.5465922	1.6781572	1.1982428	1.3465966	1.0343394	1.5046062	1.2954656	1.3453301	1.2785527	1.2840881	0.7899448	0.8135337
Phase-1 RCT-295	0.5017113	0.8578391	0.6781797	0.8611238	0.562176	0.5556176	1.0651342	1.1681826	1.0382668	0.892648	0.9805833	0.9382803	1.2458768
Phase-1 RCT-270	0.4398497	0.980101	0.5247004	0.8135929	0.5145418	0.4535331	1.0843389	1.2407471	1.0791998	0.8886678	0.9352942	0.7815947	1.2509441
Phase-1 RCT-241	1.2909565	1.1504853	1.5093951	1.2494702	1.4005688	1.8080631	0.7251883	0.7325096	0.7304468	0.8057044	1.5475765	1.2816662	1.1250352

Phase-1 RCT-191	1.8617877	1.2912173	1.692534	1.2869703	1.8166823	1.2883978	0.9419897	0.7231351	0.7399314	0.6224721	2.3776848	1.0801154	2.2285156
Phase-1 RCT-189	0.8520951	0.8551408	0.6569334	0.8185097	0.7883271	0.866738	1.0774376	1.603178	1.5286783	1.2138711	1.1819234	0.782797	1.0800868
Phase-1 RCT-179	1.1913326	1.1794572	2.0811687	1.3716091	2.424524	1.9661573	1.1626701	1.1315386	1.0255935	0.9077433	0.8175134	0.9251663	0.7398568
Phase-1 RCT-152	1.7552865	1.6506614	2.091083	1.2810138	1.3486449	1.5629497	1.2071147	0.9473447	0.7373906	0.8022502	0.8201085	0.7496445	1.1884348
Phase-1 RCT-123	1.4745797	0.8678985	0.864812	1.1506449	0.863804	0.8971895	1.2070584	0.9417501	0.9392809	0.9278012	1.2527659	0.8841026	1.3667072
Paroxanase 1	0.4275015	0.6913109	0.40398	0.5798943	0.4473963	0.4704562	0.531076	0.4745067	0.5320101	0.4815271	0.5021851	0.5328357	0.8553516
Organic anion transporter 3	0.8621656	1.0174078	0.9693895	1.1182246	0.7864281	0.5140474	1.3175988	1.4536006	0.9768471	0.6902948	1.0882787	0.5749831	0.6959701
N-hydroxy-2-acetylaminofluorene sulfoxidase (ST1C1)	0.8741163	0.5783891	0.3085378	0.2890423	0.1311424	0.1157278	0.5077717	0.5331641	0.4778536	0.4031999	0.4145576	0.4318842	0.2144646
Integrin beta1	2.5847468	1.312327	2.2970977	1.3405927	1.9414345	2.4737737	1.7085491	1.4780182	1.4246706	1.6886527	0.845577	0.9422278	0.9165761
Insulin-like growth factor binding protein 3	0.4886099	0.5610084	0.4911355	0.5722672	0.3022981	0.3165912	0.6334142	0.9652056	0.7630577	0.5387519	0.5980519	0.8430029	0.7961096
ID-1	2.306298	1.3842239	2.3010168	1.4204308	1.5516472	1.8643287	1.4431463	1.233875	1.1104575	1.0960327	1.2550203	1.1930537	1.0442795
Hepatic lipase	1.0179372	0.6300731	0.7065453	0.4600447	0.4824773	0.8934408	0.7185957	0.8227764	0.5628368	0.4684192	0.4740529	0.7814818	0.2798614
Heme oxygenase	2.7152383	1.1371093	2.2270393	1.4161971	1.9007862	4.472455	0.9844512	1.0782809	0.817642	0.7261281	0.7116813	0.9934096	0.8510598
Equibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.6902381	0.755101	0.5585185	0.4959862	0.3020701	0.2275196	0.4880138	0.6103079	0.5556082	0.4252173	0.3997742	0.6268845	0.9848797
Epidermal growth factor c-myc	0.5529362	1.0283659	0.538583	0.7224632	1.0782471	0.5515144	0.9391882	0.737751	0.8450283	1.375353	0.9892146	0.7929972	1.188321
Carbonic anhydrase III	2.908735	1.0245543	1.7830541	1.286595	2.1622064	3.679885	1.2159842	1.0019832	1.3436288	1.1122122	1.1162342	1.6878546	1.7297822
Beta-actin	0.0372995	0.2120036	0.1000727	0.1482751	0.1243989	0.078799	1.3109862	1.1384124	0.9881812	0.5592448	0.3262349	0.2088987	0.4827988
Bax (alpha)	1.9930058	2.1564136	2.9754467	1.625167	3.8749194	1.2742553	1.8392432	1.9995885	2.2815988	3.8257785	2.5394576	0.6554335	0.8867914
Alpha 1 - inhibitor III	1.384386	0.927784	0.9567475	1.1484725	1.1948808	1.2284995	1.5221621	1.1597836	1.525885	1.1983931	0.9818619	1.366778	1.0283289
60S ribosomal protein L6	0.3595857	0.565803	0.2984439	0.6324928	0.3787988	0.43376	0.4302009	0.8532909	0.6721681	0.5052084	0.5393853	0.5836702	0.9722624
Phase-1 RCT-117	2.642786	2.001232	2.4066107	1.6914116	1.9114324	1.6833869	0.8989229	0.9725	0.9324464	0.8363535	1.0505217	1.2775595	1.0421566
Phase-1 RCT-102	0.5141174	0.7518191	0.4725036	0.8205995	0.4954118	0.601397	1.8381273	1.670123	1.3210906	1.2866324	0.951409	0.7629294	1.0323018
3-Hydroxyisobutyrate dehydrogenase	0.979185	0.7244733	0.7425502	0.5413785	0.5304089	0.5827767	0.8927771	0.8443456	0.8632546	0.5806189	0.629146	0.8477321	0.2462282
ATPase inhibitor (rat mitochondrial IF1 protein)	0.5550078	0.9203749	0.5691529	0.8001381	0.5446674	0.4975133	0.8583217	0.9054595	1.1365039	1.2210318	0.6879672	0.7243433	1.080903
Alpha-2-macroglobulin	0.4840354	0.4930837	0.2747284	0.4126689	0.3303557	0.3491139	0.6085519	0.6040159	0.5048392	0.5142837	0.5303346	0.4821537	0.8805989
Phase-1 RCT-137	0.9328255	0.4453728	0.6616437	0.9099922	0.9736934	0.8452315	0.4820687	1.0187674	0.9294365	1.1914253	0.7748953	0.7339491	1.0894071
Phase-1 RCT-252	0.698903	0.9085934	0.3672357	0.9324814	0.8153182	0.7872415	0.4553237	0.5268852	0.476658	0.4004778	0.7470479	0.7470778	0.6737796
Phase-1 RCT-65	0.7067889	0.8661397	0.8466108	0.8810325	0.8079118	0.6808764	0.6451677	1.2233488	1.0584365	0.8971111	1.397953	0.5530085	1.168917
Liver fatty acid binding protein	1.1251483	1.1012527	1.1493808	1.298894	1.2658174	0.9630997	1.4116539	1.4358123	1.1765527	1.1819371	1.115887	2.0979778	0.9428421
Carbamyl phosphate synthetase I	0.6927421	0.948971	0.7574574	0.8636691	0.8656945	0.6418412	0.4583764	1.5058508	0.5292841	0.3743474	0.4118408	0.8953968	0.9201109
C-Jun	3.2143707	1.064371	2.2517328	1.7598394	1.7081951	1.7731827	1.7411708	1.3544605	1.6517537	1.3955567	1.7849726	2.2173843	0.87656
Transferrin	0.3094239	0.7186482	0.4016867	0.4565617	0.3881484	0.369303	0.7022638	0.3103809	0.3831937	0.2988883	0.3111739	0.5601787	0.6198754
Aflatoxin B1 aldehyde reductase	1.7421032	3.824148	7.065194	1.8123728	1.3996055	1.6392268	1.0137928	0.5991697	0.376633	0.4445136	0.356518	0.8018238	0.6488218
Insulin-like growth factor 1	1.5364948	1.2849332	1.7228642	1.0318732	1.6736032	1.669209	1.2531292	1.3914596	2.0068695	1.91852	1.6354334	1.5021759	1.0076462
Sodium/bile acid cotransporter	0.3368883	0.9976937	0.8446514	0.7919007	0.6303384	0.4943361	0.3101429	0.5668975	0.3329743	0.3560306	0.366156	0.7885116	0.985213
Organic cation transporter 3	2.0240538	1.6266541	1.9419141	1.5973607	1.8742828	1.6760845	0.870505	0.8592352	0.8740543	0.8580075	1.037833	1.4280577	0.9628981
Gadd153	2.9718585	1.122854	1.6915423	1.2985892	3.0361364	2.9541683	1.7388616	1.0445358	1.2607881	1.3025993	1.105625	0.8940916	0.941852
Phase-1 RCT-109	2.4274035	1.5175177	1.8651091	1.60208	1.3969826	1.529359	1.4458845	1.1852068	1.0831156	1.1038141	1.2159032	0.6416538	0.7721278
Phase-1 RCT-88	0.6079105	0.9213848	0.4764174	1.0582324	0.7710052	0.7260993	1.1475767	0.9760606	1.3402203	1.1951885	1.3873786	1.2513545	1.1227387
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.6844543	1.4440753	1.2990458	1.8304756	1.8304756	1.6816338	0.7540053	0.7783418	0.7097028	0.5934899	0.7164319	0.8150982	0.9209402
Glucose-regulated protein 78	2.46723	1.4468734	0.8230565	0.9292189	1.7311583	2.0894556	1.1500394	1.0472488	1.0706767	4.2098007	2.776258	0.2897015	0.8058562
Ribosomal protein L13A	2.8061671	1.8013763	2.0113428	1.6666081	1.8301772	1.5868955	1.6261137	1.5332355	1.3256055	1.6739731	1.8008224	0.6684468	0.6851767
Monocyte chemoattractant protein receptor (CCR2)	2.267645	1.6408286	1.8586075	1.6098369	1.7630942	1.649289	0.8724024	0.8373629	0.8333499	0.8154045	1.0169382	1.116666	1.2830448
Fas antigen	1.439155	1.3101397	1.1577528	1.3693476	2.1496255	1.1930344	1.658898	1.4236131	1.8036429	0.010614	2.3859372	1.1788747	0.72531
Calpain I heavy chain	3.8715677	1.676187	2.189351	1.623362	2.3508852	2.1298867	0.9887139	1.0540596	1.1944932	0.9857113	0.8625778	1.2444483	1.0637971
Uncoupling protein 2	2.4145768	1.3499376	1.6680452	1.8335843	1.7724017	1.6093215	1.5752545	1.3532453	1.2112763	1.2734271	1.5674418	1.2918465	1.0248822

Phase-1 RCT-168	0.7336245	0.8596757	0.8214957	0.8590437	0.8615893	0.5881366	0.9644471	1.1974081	0.91763954	1.0983257	1.1980459	0.7025182	0.8263165	0.889428
Phase-1 RCT-154	2.1555882	1.4137173	1.7245204	1.3795087	1.6410916	1.682294	1.1497729	0.9868828	1.2215265	1.1662336	1.1053346	0.9607799	1.0005022	2.0549665
Superoxide dismutase Mn	2.9548674	1.518019	1.5104393	1.6048281	1.5720065	1.8577825	1.3448886	1.1202865	1.4254374	1.4426531	1.6077439	1.094141	0.8849636	1.2139889
Phase-1 RCT-214	0.8170111	0.9647705	0.9813356	1.0126156	0.8007848	0.8558818	0.7484588	0.8866593	0.9831879	1.0666806	0.8764125	0.8643087	0.9111136	0.4349275
Phase-1 RCT-225	1.840301	1.6012229	0.4994452	1.803509	0.537821	1.6661315	0.847556	1.1654569	1.448871	0.8907595	0.4840235	1.0237489	0.7615722	1.1903867
Phase-1 RCT-181	0.8828901	0.8790867	0.7274394	1.027137	0.9835876	0.8832993	1.0045929	1.0409751	1.216856	1.2604249	1.2534215	1.031918	0.957369	0.9145681
Nucleoside diphosphate kinase beta isoform	1.2519243	1.1696349	1.1105106	1.212127	1.6729065	1.1620513	0.9310227	0.9181216	0.9987968	1.3406321	1.1420627	1.1557537	1.6733011	1.252927
Extracellular-signal-regulated kinase 1	0.0565397	0.3414356	0.2500883	0.1367805	1.140424	0.0794654	1.2907908	1.1054016	0.8437554	0.5599762	1.3071311	1.1885566	0.7304365	1.106823
Ribosomal protein L6	2.3689332	1.8346372	2.2026622	1.6086929	1.5839182	1.6111103	1.3100564	1.3100564	1.3100564	1.1506336	1.5671485	0.9207557	1.0122584	1.2395572
Aldehyde dehydrogenase, microsomal	0.6933889	0.825416	0.5615354	0.7516701	0.76253	0.6497358	1.277826	1.0955907	1.0034623	1.1065545	1.0775802	1.0665894	1.150418	0.9709296
p53	1.490807	1.3234842	1.3869592	1.090461	1.161143	0.9176187	1.161143	0.9146908	1.0283021	0.988948	1.0234778	1.0392827	0.8040103	0.9495751
Phase-1 RCT-239	0.65175	0.82122	0.6021984	0.772507	0.6643653	0.6013878	1.3705628	1.15416204	1.2249913	1.0724903	1.3306426	1.6431084	1.0658231	1.8452631
Macrophage inflammatory protein-2 alpha	3.5830648	1.4085846	2.8965595	1.6478957	2.010488	2.9882014	1.0882816	0.7840559	1.0068804	1.5919212	1.0074661	1.5734266	1.2599277	4.758492
IgE binding protein	4.9149375	1.675745	2.0075607	1.9184964	1.7290056	2.2816997	0.9575879	1.1243845	1.2497979	1.2329196	0.977197	1.2092845	0.8146161	1.2889707
Phase-1 RCT-205	1.5378289	1.2091863	1.2712562	1.0334775	1.3105564	1.7285874	0.8101422	0.9589918	0.9563383	0.9518551	1.1121995	1.1161385	1.0729933	1.2139889
Melanoma-associated antigen ME491	2.0621252	1.4337863	1.3791602	1.1710653	1.2296801	1.4669724	0.986387	1.0738835	0.9857604	1.0015023	0.9784083	0.9698131	1.013202	1.2892904
Phase-1 RCT-242	1.465543	0.9221696	2.2434483	1.0150152	1.2900362	1.5683508	1.2192566	1.1172447	1.2087231	1.1518385	1.0520348	1.2966844	1.0386839	1.8458608
Enolase alpha	1.760203	1.4004919	1.8599303	1.2116262	1.27204	1.3206886	0.8077577	1.5846904	1.15621	1.8185347	1.8946108	0.5593312	0.9973091	0.9022746
Thymosin beta-10	2.6200216	1.5133142	1.8628675	1.813572	1.6748557	1.5710407	1.459228	1.2739258	1.0923687	1.1484659	1.5247775	0.7746214	0.9973091	1.0044553
Carbonyl reductase	1.7787225	1.2029405	1.2163616	1.2784184	1.2989422	1.1379477	0.802887	0.8435684	0.9684053	0.9990427	0.7682869	0.9727799	1.3761318	1.1656151
MAP kinase kinase	1.6894636	1.4748449	1.661004	1.3940912	1.6088825	1.7447444	0.7892331	0.8595761	0.8156682	0.7642246	0.9103994	1.282442	1.2107755	1.2957272
Phase-1 RCT-182	1.2406976	1.1201105	1.0850257	0.804019	1.3512853	1.078458	0.9910329	0.7745083	0.9344583	1.3151638	1.0814239	0.8182758	0.8903453	0.8004822
Phase-1 RCT-72	1.6615405	1.3521535	1.6655351	1.4253778	1.4253778	1.3430874	0.9550369	0.8462222	0.8250528	0.7469191	0.8314185	0.9932673	1.1413177	1.1681024
Ribosomal protein S8	2.575965	1.8624856	2.1455233	1.7219283	1.5348426	1.3714188	1.3946064	1.135691	1.0744566	0.9890431	0.9493881	0.8320233	0.9461111	1.1017557
Proliferating cell nuclear antigen gene	1.2739083	0.8845056	1.2145532	1.0187743	1.0187743	1.6634737	0.9228275	0.7554148	0.931667	0.8009754	0.9326549	0.9411848	1.0303925	1.1966109
Phase-1 RCT-192	1.7672387	1.3316823	1.17472245	1.1747884	1.4558609	1.1726967	1.0165868	1.1343478	1.0368281	1.2017347	0.9820182	0.9820766	1.3028827	1.504003
IRB-a	1.7262594	1.3872033	1.8576231	1.1632228	1.1811992	1.3579197	1.0526273	1.5075687	1.1326621	2.0592847	0.5494151	0.592347	0.5648141	0.8274848
Endogenous retroviral sequence, 5' and 3' LTR	1.1083918	1.911832	0.8517811	1.9804286	0.8488149	1.4089308	0.7794915	1.4570918	1.1854516	1.2431531	1.539076	0.5092347	0.5648141	0.8274848
Phase-1 RCT-37	1.8286437	1.5163486	1.8210925	1.3302857	1.441814	1.3576527	1.1869764	1.2574722	1.1988237	1.2206571	1.539637	1.1340243	1.0140313	1.1972648
Matrix metalloproteinase-1	1.9700292	1.6615969	2.3323212	1.0988316	1.1650577	1.2953582	1.864509	1.7199322	1.5294427	1.6043587	2.1731188	0.9782881	1.2348428	0.8856398
Cyclin G	2.4211576	1.1573657	1.2865088	1.7635794	2.2096837	2.0859618	2.0284479	0.834939	1.0805935	1.2311877	0.9744952	1.3104947	2.2622184	4.177021
DNA polymerase beta	1.2825508	1.2698765	1.2297217	1.0803038	1.1799638	1.0104771	0.7000578	0.5424109	0.5217003	0.4231622	0.613861	0.9505013	1.0333036	1.0247248
Phase-1 RCT-127	1.4337729	0.8181827	1.307704	0.982536	0.7233632	1.7249565	1.8457665	1.6520334	1.3075392	1.2172813	0.9211795	1.1035542	0.9831564	1.158282
Multidrug resistant protein-2	6.1735992	1.905452	4.252751	2.902582	2.4494357	2.5094052	1.5861276	1.1946852	1.2312013	1.109738	1.7783016	0.9401709	1.639345	2.9246273
Ribosomal protein S9	1.8109064	1.1725705	1.1839602	1.3214	1.6653762	1.5288471	0.8788492	0.6371657	0.6928009	0.6014586	0.7177029	0.9146004	1.5035032	0.9522787
Phase-1 RCT-12	1.9253509	1.139744	1.2756582	1.0106765	1.5688204	1.318987	0.6789671	1.0238414	1.0179986	1.0760834	0.9468527	1.2084297	0.7116929	1.0336585
Beta-tubulin, class I	2.8506553	1.182604	1.6753527	1.0757418	2.314277	1.4674935	0.7992553	0.8457782	0.8946962	0.8345172	0.8538087	1.3677133	0.5222045	0.8286044
Arginosuccinate lyase	1.9414912	1.4516863	1.8944308	1.1376382	1.861319	1.3540685	1.1580272	0.808817	1.1280862	0.8104566	0.7526508	1.103141	0.5909745	2.0967388
Elongation factor-1 alpha	2.102706	1.4988712	1.7133046	1.3815624	1.3516675	1.2004886	1.3969063	1.1717944	1.2449312	1.1452734	1.3946578	0.624918	1.4390482	0.8224526
Phase-1 RCT-55	0.9118204	1.4107014	2.630658	1.3448384	2.0394783	1.978757	1.0319188	1.0702797	1.196543	1.5533937	1.0892372	0.7408477	0.7892042	0.9623083
Macrophage inflammatory protein-1 alpha	1.7506841	1.4494371	1.6503798	1.4451402	1.8146522	1.827477	1.0340112	0.9835348	0.9776784	0.7889588	0.9818819	1.5730629	1.0328964	1.7944839
c-H-ras	1.3988246	1.0318757	0.9768938	1.2015506	1.0392032	1.017741	0.9725517	1.3131206	1.1269218	1.3974054	1.3004295	1.2268939	0.8330191	1.1560876
Multidrug resistant protein-1	10.695147	1.876597	4.234022	4.0481467	3.405581	3.0688853	1.7220082	1.6474925	1.9830111	1.5604704	1.9386741	1.0010531	1.8931203	5.2121284
T-cell cyclophilin	1.3725969	1.3619719	1.3657271	1.11287	1.1340784	0.969251	0.7418288	0.5545211	0.6225194	0.7667258	0.6250145	0.7667258	1.3311886	0.9044762
Phase-1 RCT-185	0.3866218	0.6933657	0.5684025	0.6394927	0.4921482	0.519972	0.74057	0.9012871	0.7429908	0.6512678	0.6804155	0.5877339	0.8644245	0.5752222
25-DX	0.9731351	1.5323958	1.5084121	1.2160286	1.0874388	1.2160532	1.2341386	1.821772	1.3431682	2.120996	1.9546307	0.537659	0.8948053	0.6324778
Ref-1	1.3498952	1.3052413	1.5201882	1.2438059	1.7135047	1.8923337	0.9318656	1.2621802	1.1289668	1.1458676	1.1772068	0.8889914	0.8429289	1.127526
Apolipoprotein CIII	0.4918512	0.9200652	0.7942825	0.7777448	0.7203525	0.9100806	0.8156238	0.685941	0.7565933	0.8916003	0.7841038	1.0393406	1.1187688	1.0711887

NADPH quinone oxidoreductase-1 (DT-diaphorase) Pyruvate kinase, muscle	1.490646	1.4868166	1.5710475	1.8829526	1.905352	2.524841	0.5802039	1.0446845	0.7691945	0.8555439	1.1638571	0.9874752	1.2574757	1.9799837
	3.186226	1.3080701	2.158049	2.101238	2.3172796	2.2965617	1.395751	1.0498942	1.0295482	1.112782	1.3712785	1.8185265	0.7661569	1.0308839
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Table 35. Expression Data for 24 Hour		Timepoint (1)															
Compound-Dose (2)	Animal Number (3)	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10
Liver Toxicity Necrosis Classification (4)		no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name (5)																	
Phase-1 RCT-78		0.8046168	0.9871655	1.0238378	1.0873106	1.1120224	1.037546	1.0312718	0.9921061	0.9653634	1.0674027	0.9788164	1.0018809	0.8982704	0.8865598		
Gamma-actin, cytoplasmic		0.5751056	0.6795235	1.0778693	0.7839244	0.8603201	0.7769318	0.7060872	0.6459986	0.8668311	0.7804518	0.7148457	0.9918829	0.8274213	0.7739847		
Matrin F/G		1.2083122	0.9624211	0.221087	0.1016748	1.1361852	1.4009918	1.0089918	1.0049681	1.304306	1.3268683	1.2367427	1.3119333	1.0637772	0.9590906		
Zinc finger protein		1.1447985	1.0847522	0.9179699	0.8378578	0.8106546	1.0859216	1.0245874	1.0017802	0.9231237	0.7508053	0.8783699	0.8219812	0.9308771	0.8928176		
Cathepsin L, sequence 2		1.6676673	1.4350458	1.0773492	1.0117935	0.9565347	1.0829068	0.9754005	0.8837841	1.2383432	1.2705245	1.1568672	1.1663008	1.2032856	0.9103449		
Gadd45		1.3900796	1.0893845	1.1658715	0.7616676	1.1293821	1.0778009	0.9973549	0.9887331	1.2393732	1.0090585	1.0248095	1.4100428	1.2879765	1.8108071		
Phase-1 RCT-144		0.9701576	0.8475664	0.9703862	0.8121525	0.9202232	0.931891	0.8180039	1.2672701	0.6549211	0.8348357	0.8015942	0.9811293	0.908677	0.955141		
Phase-1 RCT-145		1.0810103	0.8703174	0.971588	1.088558	1.0424821	1.2225633	0.9796398	1.2561848	0.860321	0.8624865	0.9983288	1.0326535	1.0469033	0.9903552		
Phase-1 RCT-50		1.037604	0.8177524	1.114569	1.088558	1.0424821	1.2225633	0.9796398	1.2561848	0.860321	0.8624865	0.9983288	1.0326535	1.0469033	0.9903552		
Phase-1 RCT-82		0.709987	1.3048607	0.9014301	0.7500759	0.743497	0.6614122	0.7875341	0.9808787	1.0616745	0.9555322	0.9127119	1.124379	0.9706637	0.9424857		
Phase-1 RCT-89		0.8633486	0.9986178	0.8670437	0.905162	0.8961787	1.0566935	1.1200917	0.9568682	1.02487	0.9727208	0.9867388	1.1413121	0.9235765	0.9075318		
14-3-3 zeta		0.9103854	1.1311103	1.2143873	1.220523	1.170078	1.1488868	1.129528	1.0137153	1.1270578	1.1470114	0.8113008	0.9559349	0.8098114	0.7541698		
Dynamin-1 (D100)		0.8578991	1.1988286	1.0052273	1.0230565	0.8908589	0.9982128	1.0824605	1.1738801	1.023684	0.9301965	0.9578129	0.90223999	0.8789517	0.7925122		
Insulin-like growth factor binding protein 1		1.0143567	1.32067	1.4721029	1.6323174	1.504116	1.680814	1.5471383	1.1587747	1.0503203	1.0420595	0.9389124	1.4854089	1.2531165	1.5121571		
L-gulonolactone oxidase		0.3640078	0.5087522	0.8005487	0.7057471	0.5025994	0.6946214	0.775735	0.8772822	1.3819056	1.5457462	1.3697044	1.2005341	0.9574766	1.0319285		
Ornithine decarboxylase		1.0972922	0.7047622	1.1665722	0.8244281	0.9825374	0.9671012	0.9300174	0.8452814	1.1223087	1.1905354	1.1402204	1.1084533	1.2060008	1.3621129		
PAR interacting protein		0.9236925	0.8311345	1.049854	1.0367074	0.9792762	1.010814	0.9554628	1.08781	0.8853049	0.8668899	0.972051	1.0335934	0.939502	0.9906902		
Phase-1 RCT-128		0.5882262	1.8249751	0.9893356	1.0063609	0.8046587	0.940525	1.2254317	1.0427474	1.3032243	1.0724229	0.9624687	0.869738	0.8495271	0.8872599		
Phase-1 RCT-180		1.2252749	1.0601547	1.0851308	0.8510201	1.0504035	0.9015508	0.8617662	0.8242607	0.9234832	0.8418231	0.6705864	0.8414683	0.7874881			
Phase-1 RCT-182		0.754691	1.0924189	0.7678318	0.7685625	0.7374777	1.0332078	1.0206137	0.8593107	1.2286002	1.0119788	1.0283534	1.053086	1.0522426	1.3565948		
Phase-1 RCT-207		1.7344229	1.5880327	1.0974342	1.211136	1.0326438	1.2120092	1.1693616	1.4897581	0.812847	0.8553222	0.9894857	0.8592435	0.9296542	0.833365		
Phase-1 RCT-213		1.1370479	0.8928941	0.9979489	1.1325656	0.9982649	1.036674	0.9403351	1.0384609	0.9716979	0.9187113	0.9880305	0.9102739	1.0207289	0.964093		
Phase-1 RCT-256		1.0502334	0.7075624	0.992701	1.0548091	0.9146017	1.0935885	1.0810217	1.1854497	1.0078565	0.8844186	1.024528	0.9641455	0.985597	0.9303849		
Phase-1 RCT-258		0.6364979	1.3715794	0.6718445	0.7697249	0.636275	0.563508	0.8388788	0.6123741	1.0339298	1.1797496	0.9400041	0.983529	0.6578118	0.9085717		
Phase-1 RCT-271		0.4463132	1.1051266	0.8834405	0.9855003	0.6716755	0.7088048	0.9824195	0.9471153	1.2284541	1.0611937	0.9930724	0.8926574	1.0380732	0.9008862		
Phase-1 RCT-288		0.5864734	0.8905542	0.9812592	0.9747835	0.8670272	1.0427788	0.9349029	1.0989327	1.0391032	1.0451883	0.9830022	0.9895406	0.8829587			
Phase-1 RCT-38		0.6190891	1.063186	1.0868759	1.0166274	0.8170337	0.7791298	0.9631153	0.9772005	1.2382972	1.2852923	1.168362	1.0336498	0.8561928	0.8183252		
Phase-1 RCT-39		0.9989899	0.7731459	0.9408482	1.0248312	1.1853719	1.0178993	1.0109487	1.2472459	0.8956333	0.8312525	0.9610307	1.125456	1.1323239	1.0077417		
Phase-1 RCT-68		1.0019991	1.1050183	1.0381862	1.0394188	1.0161443	1.0323689	1.0321838	1.0663778	0.8381461	0.9717728	0.9977662	1.153136	1.0949327	1.0418516		
Phase-1 RCT-33		0.5998613	0.6128426	1.0091028	0.8823876	0.86417	0.9027408	1.0406156	1.025996	1.220438	1.2245404	1.0739689	1.2708685	1.0056202	1.3127908		
Phase-1 RCT-36		0.8501622	0.7313553	1.0184898	0.9492431	0.8762108	0.925804	1.1394242	0.8996747	0.8930224	0.9837513	1.1013168	1.1010023	1.1851918			
17-beta hydroxysteroid dehydrogenase, type 2		0.6496035	0.1475818	0.7709408	0.9076842	0.8512438	0.6846164	1.8661739	1.0694108	1.5687214	1.8456241	1.4490198	1.966508	0.8198347	1.3169792		
Sensescence marker protein-30		0.42047	0.9719585	0.9864362	1.0504204	0.8480418	0.9684312	0.9954882	0.9643821	0.9815532	1.2791436	1.128092	0.834338	0.8948776	1.3212239		
Ribosomal protein S17		1.0878431	1.9202831	0.9832848	1.1760634	1.0018028	0.8554587	0.9687598	0.821361	1.0750471	1.589347	1.0278233	1.0485919	1.1580366	0.918547		
Phase-1 RCT-83		0.6946861	0.8835927	0.8277054	1.0008863	0.9380672	0.8266082	0.8987337	1.0399531	1.0828535	0.8776821	0.9137351	0.7876189	0.9013009	0.9108204		
Phase-1 RCT-49		0.9792716	0.8687833	0.9397801	0.8518593	1.06024	1.0177245	1.0266343	1.39848	0.8498006	0.874466	0.9435244	1.0009714	0.9330728	0.9872036		
Phase-1 RCT-48		0.5791487	1.3059178	0.9763258	1.0195045	0.9937492	0.7691087	0.8571204	0.8020228	1.0534049	0.95551	0.9435244	1.0009714	0.9330728	0.9872036		
Phase-1 RCT-40		0.7598361	1.1957912	0.8566524	0.8540801	0.9933591	0.7665758	0.9859136	0.6756692	1.2148898	1.1878873	1.0718286	1.1340768	0.9319864	0.7870088		
Phase-1 RCT-286		0.2450759	0.3108751	0.8045093	0.6070795	0.5058811	0.5518755	0.7134052	0.7381998	1.4932228	1.3987363	1.2012094	1.6095632	1.0124761	1.0056144		
Phase-1 RCT-295		0.921289	1.143048	1.137225	1.1930573	1.0916301	1.013991	0.7168151	0.8285808	0.7357563	1.3218302	1.2138888	1.0843488	1.0536402	0.9659656		
Phase-1 RCT-291		0.9680121	1.1965843	0.8452637	0.7624245	0.8178515	0.8285808	0.7357563	1.3218302	1.2138888	1.0843488	1.0536402	0.9659656	0.871088	0.9497725		
Phase-1 RCT-270		0.6294889	0.8483383	0.8774688	0.8479526	0.7580024	0.6458318	0.9349173	0.8101968	1.1915478	0.8854709	0.9756414	1.0210508	0.871088	0.9497725		
Phase-1 RCT-241		1.3712897	0.922268	1.0128397	1.0734928	1.0872037	1.0168953	0.9553103	1.1946778	0.9616112	0.8852473	0.9528104	0.9196029	1.1230364	1.30177248		

Phase-1 RCT-181	2.0367167	0.7249804	0.9282345	0.8220799	0.957703	1.0112606	0.9300578	1.0814689	1.0778388	1.059468	1.1639428	1.0744107	1.0410655	1.1445812	1.1546031
Phase-1 RCT-189	0.7702052	1.0880882	0.8814318	0.9514646	0.927505	1.03048	1.1528964	0.8536796	1.2841735	1.1639428	1.0744107	1.0410655	1.1445812	1.1546031	0.831108
Phase-1 RCT-178	0.76473	1.0310601	0.971588	1.0110725	0.9959621	1.08282	0.8879474	1.166585	1.0847381	0.9634397	1.0190275	1.086883	0.8332234	1.1438717	0.8332234
Phase-1 RCT-152	0.9983237	1.2797565	0.9144024	0.9934285	1.170481	1.0005909	1.0748382	0.9997506	1.0202174	1.2492963	1.1147162	1.1818701	1.0366245	1.1438717	0.8332234
Phase-1 RCT-123	1.2180126	0.8825168	1.0372825	1.1503855	1.0392454	0.9473302	0.9313281	1.1763302	0.9552968	0.796243	0.9366691	1.0087385	1.0162578	0.9883124	0.8332234
Paraoxonase 1	0.5490457	1.2321923	0.6409275	0.8274352	0.6301668	0.8039061	0.8394398	0.7364444	1.124285	1.3163103	1.0480409	1.2633115	1.0438304	1.0508598	0.8332234
Organic anion transporter 3	0.8639926	0.8307495	1.7660377	1.464902	0.990658	1.0027584	1.0872981	1.2428385	1.28996	1.0508424	1.2768179	1.3698672	1.2174009	0.8332234	0.8332234
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	0.4633918	0.9007394	0.7581822	1.0462459	0.8407808	1.0132732	1.0009149	0.9120821	1.2311027	1.2570487	1.1288201	0.9997854	0.9228205	0.8332234	0.8332234
Integrin beta1	0.8913387	0.8955817	1.1434082	1.1484933	1.1695391	1.2759743	1.187599	1.3816445	0.9876833	1.1289806	1.0033633	1.1523081	0.9851696	0.8332234	0.8332234
Insulin-like growth factor binding protein 3	0.7595621	0.7517783	1.0250034	0.9218206	0.8983931	0.8151444	0.9803886	0.7420601	0.8539061	1.2179834	1.0362505	0.8317886	0.7500972	0.7018985	0.7018985
ID-1	1.1348583	1.117049	0.9896722	1.0360568	1.201731	1.2741591	1.1313009	1.2305789	0.7822036	0.9563668	1.0813543	0.9087713	0.7822133	0.7844114	0.7844114
Hepatic lipase	0.4086699	0.7395916	0.7741466	0.7656857	0.6444346	0.6378239	0.7942272	0.7132315	0.9871055	1.0274721	0.7982159	0.9922249	0.4428219	0.7400179	0.7400179
Heme oxygenase	0.7658498	0.7037601	0.9372743	0.7161879	1.527974	1.1091478	0.8003252	1.0428406	0.8955033	0.8850648	0.9139835	1.1075792	0.9360811	1.3717853	1.3717853
Equilibrative nitrobenzylthiolinosine-sensitive nucleoside transporter	0.678933	0.9716563	0.8296835	0.9535281	0.8981892	1.0215355	0.9811389	0.9915086	1.0761798	1.0090948	0.8594897	0.8143289	1.0519688	1.034184	1.034184
Epidermal growth factor	0.9464319	1.8327162	1.0493588	0.9323096	1.4311419	0.7759705	0.9940925	0.7275533	0.9753428	1.063766	1.0018679	1.0069776	1.0977278	1.0249517	1.0249517
c-myc	1.4593872	0.9192107	1.1620953	1.0162963	1.0749708	1.2821244	1.010309	1.0084795	0.8243019	0.7078105	0.9015688	0.8670703	0.9332053	0.866055	0.866055
Carbonic anhydrase III	0.2762675	1.318169	1.2066739	1.5381652	0.863671	1.3674699	1.0822979	1.32104	1.8393288	0.8378002	1.200754	0.859521	0.9732239	0.8005103	0.8005103
Beta-actin	0.5040894	0.897674	1.0397253	1.5636549	0.737821	0.9482086	0.6332876	1.2093507	0.8156328	0.6453943	0.7704772	0.8727369	0.426125	0.426125	0.426125
Bax (alpha)	1.1582731	1.5687138	1.2830487	1.1199355	1.1929992	1.220737	1.0058925	1.0377324	0.842567	0.9716278	1.0921773	0.9540634	1.0125102	1.0886308	1.0886308
Alpha 1 - inhibitor III	0.3911211	0.7079244	0.7224569	0.8207221	0.5718046	0.9078235	0.8683121	0.7781227	0.9053762	1.4585855	1.1113497	0.5575254	0.7340002	0.7340002	0.7340002
60S ribosomal protein L6	1.0270361	0.9557632	1.153887	1.175986	1.1347727	1.1285975	1.1544085	0.8401293	1.1784494	0.9274697	0.948593	0.8960638	1.2027582	1.0619058	1.0619058
Phase-1 RCT-117	0.8956635	1.89721	1.2718484	1.0508528	1.5117348	1.0601634	1.2468214	0.8093842	1.1531562	1.1112852	1.1398813	0.8124891	0.8045102	0.9560958	0.9560958
Phase-1 RCT-102	0.3089513	0.6147865	0.867229	0.7123037	0.4588193	0.3358196	0.5202518	0.6676589	0.6473121	0.8773212	0.853246	0.470831	0.4288305	0.3359523	0.3359523
3-hydroxyisobutyrate dehydrogenase	0.7794384	1.1583204	0.9067104	0.8783282	0.8507776	1.012777	1.0832094	0.8548204	1.5416944	1.2398165	1.053338	1.1814077	1.0193034	1.042428	1.042428
ATPase inhibitor (rat mitochondrial IF1 protein)	0.6261172	2.144783	0.7522483	1.0689827	0.9707199	0.818203	0.7948468	0.5887893	1.2030863	1.0725507	1.0740273	0.7631808	0.8401004	0.8558082	0.8558082
Alpha-2-macroglobulin	0.4847911	0.9010837	0.8063359	0.7430178	0.6473633	0.9903805	1.098036	0.9263381	0.7948413	0.9460717	1.0827864	0.9700276	1.1778111	1.5338515	1.5338515
Phase-1 RCT-137	0.6803377	1.6302003	0.7523394	0.8273942	0.7172529	0.7591894	0.9208069	0.6965688	1.2128456	0.8848574	0.8659195	0.8203449	0.7703918	0.8451084	0.8451084
Phase-1 RCT-65	1.089488	1.3014208	0.9063108	0.8039333	0.7522041	0.8546151	1.0458614	0.8962863	1.42121	1.0121545	1.0463375	1.0745214	0.7418699	0.7687341	0.7687341
Liver fatty acid binding protein	1.530546	0.8885216	1.0492948	0.8185152	0.9144948	1.0885247	0.9209035	1.0594393	1.0842564	0.9574943	1.0121648	0.8571658	0.8608877	0.7688577	0.7688577
Carbamyl phosphate synthetase I	1.0675259	1.4835996	0.835522	0.8103007	0.6998422	0.9503316	1.0247873	0.8458644	1.5880901	1.3347597	1.1294214	1.1664128	0.78521	0.8458566	0.8458566
c-Jun	3.097618	1.2160735	1.1490877	0.852124	1.025271	1.4643363	1.226269	1.1390681	1.5758098	0.969397	1.1066635	1.3972062	0.8922189	1.133416	1.133416
Transferrin	0.5726632	1.2968193	0.8747036	0.6038043	0.5091327	0.5263106	0.7030417	0.51361	0.8692275	1.3882896	0.8804305	0.9502858	0.6537179	0.6914399	0.6914399
Ala1oxin B1 aldehyde reductase	0.6381856	1.3932115	0.7014087	0.9102977	0.7004176	0.8301392	1.1138501	0.8669681	1.0157241	1.0497803	1.1127889	1.3357984	1.099218	1.0322719	1.0322719
Insulin-like growth factor I	0.5972167	0.8088279	0.9661401	0.8670542	0.8927318	0.7476081	0.8885972	0.6571685	0.932158	1.2668804	1.1426656	0.7593854	0.5065861	0.5353174	0.5353174
Sodium/bile acid cotransporter	0.5590594	1.4424578	0.8587267	0.8708533	0.737493	0.8399525	1.2769556	0.7423678	1.1460938	1.3909429	1.32358	1.1055478	1.1638454	0.9877787	0.9877787
Organic cation transporter 3	0.9381509	0.9255762	1.0896637	1.2236319	1.2009283	1.1090454	1.1381396	0.9532456	1.0669408	0.950462	0.9414581	0.8064956	1.0379571	1.0734189	1.0734189
Gadd153	1.4889789	1.5081396	1.2518166	1.6769141	1.097336	1.2237183	0.9808785	1.0080427	0.8778138	1.0093688	1.0837454	1.0934826	1.049213	1.086267	1.086267
Phase-1 RCT-109	0.8433956	0.9243685	1.2153028	1.4855807	1.427764	1.441311	1.4541881	1.15212	1.0035005	0.9705471	1.0784366	0.9549983	0.9468043	0.8062006	0.8062006
Phase-1 RCT-48	1.2653813	1.1898217	0.9892768	0.8407377	0.8947768	0.9287574	0.9015271	1.2359864	0.9088665	0.9458805	1.0276841	1.3025522	1.1488885	1.0369705	1.0369705
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.8644446	1.1891438	1.0179031	1.2121485	0.994928	1.0746713	1.1622276	0.8982192	1.0793881	0.9608292	0.9817644	0.8108932	0.9383767	1.0173624	1.0173624
Glucose-regulated protein 78	0.5350605	0.9516534	1.5092411	1.3003453	1.643553	1.3164812	1.0571983	1.2491822	1.1877414	1.1735787	1.0445507	1.1820309	1.1505787	1.0361984	1.0361984
Ribosomal protein L13A	0.7969471	0.9688379	1.6368532	1.5070733	1.5708558	1.458684	1.3681636	1.057396	1.0701895	1.08023	1.0932258	0.9440816	0.915589	0.8081462	0.8081462
Monocyte chemoattractant protein receptor (CCR2)	1.2790887	0.8896768	1.0962943	1.1872026	1.1601523	1.0524667	1.0464318	1.1728363	0.8493858	0.8416292	1.0206528	0.8926773	1.0865088	1.0995505	1.0995505
Fas antigen	1.0028166	1.2817052	1.1950943	1.3759305	1.4303813	1.2577088	1.2500275	1.0241503	0.9021689	0.991483	0.9681429	0.9221814	1.0334537	0.891094	0.891094
Calpactin I heavy chain	1.1446929	0.9323243	1.0531199	1.2163562	1.3931119	0.9855546	1.0330664	1.012253	0.8790943	0.8906688	1.0159656	0.9645357	1.0714376	0.9879699	0.9879699
Uncoupling protein 2	1.1717832	1.0542072	1.1697519	1.413869	1.2624334	1.0045985	0.9786846	0.915287	0.8727165	0.8727165	0.8727165	0.8727165	0.8727165	0.8727165	0.8727165

Phase-1 RCT-168	0.6138488	0.780075	0.9761707	0.9521159	1.1161588	1.024106	1.0241808	0.9078201	0.937528	0.9982292	0.8695318	1.1368818	1.0466332	1.0800414
Phase-1 RCT-154	2.5475147	2.2489664	0.956887	0.9893968	0.9991077	0.9834675	1.0341693	1.2637999	0.9103072	0.8596345	0.9527857	0.9199665	1.0494719	0.9609252
Superoxide dismutase Mn	1.0029622	1.3913771	1.5747628	1.5596021	1.6861567	1.3651761	1.2412094	1.097916	1.2434553	1.2873269	1.2595832	1.101772	1.4288327	1.1436363
Phase-1 RCT-214	0.405502	0.9692238	0.9839418	1.0081819	0.5879876	0.820463	0.6527693	1.0036073	0.9534126	0.9200357	0.9650487	1.004252	0.9650487	1.004252
Phase-1 RCT-225	0.6400325	0.7091386	0.9628665	1.1730175	1.3434876	0.9277262	1.0835439	1.0387151	1.4208792	0.8867768	1.0463278	1.050487	0.7988276	0.6394028
Phase-1 RCT-181	0.9410605	0.8488927	1.0867357	1.0406928	0.9739959	0.8801246	0.9130774	1.0489882	1.0521691	1.0441566	1.0882947	1.1397681	0.9695453	1.0078723
Nucleoside diphosphate kinase beta														
Isomorph	1.139818	1.7035264	1.0044122	1.0485855	1.0339017	0.8011803	0.9407457	0.775411	1.007616	1.1206173	1.0439778	1.1101897	1.3020135	1.2315216
Extracellular-signal-regulated kinase 1	0.7268254	1.288836	1.1162939	1.2586837	0.8366346	1.2957016	1.0274451	1.11061	1.2805088	0.8534953	1.095857	0.6704319	0.8942781	0.6232093
(Ribosomal protein L6)	1.0734788	1.0681065	0.9872537	1.045468	0.9641402	1.0742276	1.0157852	0.8919665	1.2610809	1.2498722	1.2498722	0.985636	1.0129378	
Aldehyde dehydrogenase, microsomal	0.7960903	0.7675256	1.1214892	1.02648	1.0777656	1.0054383	1.0876639	0.8521644	1.041787	1.0348518	0.9244143	0.8684579	0.9102538	1.0100766
p53	0.7704963	1.0029768	0.9127369	0.9328778	0.9328778	0.9817829	0.9293447	0.9817829	0.9293447	0.9817829	0.9293447	0.9817829	0.9293447	0.9817829
Phase-1 RCT-239	1.1058224	0.7785404	0.9572584	0.9774314	0.9774314	1.0893745	1.0288054	1.3403263	0.7752677	0.8423	0.9090222	0.8752711	0.8590876	0.7298355
Macrophage inflammatory protein-2 alpha														
IgE binding protein	1.797691	2.1660028	1.0784763	0.9052038	1.1593039	0.9518957	0.9443452	1.044781	0.7423833	0.8488313	1.0639075	1.0813316	1.2070769	1.230188
Phase-1 RCT-205	1.2985214	0.8752174	1.0462023	1.248895	1.1920556	0.9353232	0.95473	1.0180311	0.9892967	0.9474773	0.9831421	0.9581928	1.033858	0.9813864
Melanoma-associated antigen ME491	0.9298396	0.7669697	0.9418964	1.0257899	0.9438863	0.9854555	1.0079683	1.2848107	1.0223074	0.9144027	1.0809205	1.088368	1.1281394	1.073841
Phase-1 RCT-242	1.1373084	1.004523	0.9736744	1.6206717	1.098901	1.102528	1.282026	1.260276	0.8959557	0.7721415	0.7758122	0.8356031	0.8061376	0.9347186
Enolase alpha	1.8894325	0.951277	0.9583244	1.0463378	0.9751728	1.1688443	1.0017463	1.7604536	0.8238116	0.7435682	0.8693325	1.1394132	0.8916928	
Thymosin beta-10	0.8716074	2.3281766	1.0378855	0.9762643	1.0826788	0.8477321	0.8186811	0.7416872	1.0390514	1.2987049	1.0463956	1.2012522	0.8717675	1.1920054
Cofilin	0.8322679	1.2984791	1.097345	1.5103061	1.1944747	1.192976	1.1448518	1.0284677	0.8138593	0.8822638	0.9540584	0.7770349	0.8465763	0.7005094
Carbonyl reductase	1.2126508	0.9468309	1.0316017	1.1252222	1.0064368	1.229317	1.0018888	0.8249927	0.8177791	0.9332739	0.8836972	1.1429694	1.263531	
MAP Kinase kinase	0.7756838	0.7847748	1.0492274	1.0488414	1.0725509	1.0714084	0.9895403	0.8948286	0.8841588	0.9968428	1.0419743	1.073772	1.0733225	1.0155474
Phase-1 RCT-162	1.0870709	1.1600704	1.0045476	1.0845284	1.003322	1.0049988	0.9999899	0.9909707	0.9909707	0.9909707	1.030518	1.0753801	1.0683684	0.9374762
Phase-1 RCT-72	0.9191091	0.9388089	0.9754179	0.9330528	0.9865277	0.9291911	0.9371134	1.4278698	0.800569	0.9107598	0.9746472	0.9566778	0.9987635	
Ribosomal protein S8	1.0035172	1.5685288	1.0577986	1.218728	1.0091369	1.0089744	1.0726746	0.8102557	1.1661334	1.2827874	1.1929778	1.2079232	1.1315039	1.1351981
Proliferating cell nuclear antigen gene	0.9865306	0.973594	0.985312	1.2184209	0.9177692	1.0871881	0.8563434	1.0428165	0.8335965	0.957534	1.0210738	0.9756644	0.9025084	0.865236
Phase-1 RCT-192	1.0868511	1.3035669	1.2245295	1.1848744	1.0970803	0.9716311	1.0871553	0.8666282	0.8728432	0.7892523	0.8650084	1.0478005	0.9789699	0.8959922
kB- α	0.8979037	1.2738705	0.9704366	1.0312173	0.8759286	1.026036	0.9553378	0.9531507	0.8280283	1.1372013	1.1712449	0.9125757	1.014124	
Endogenous retroviral sequence, 5' and 3' LTR	0.7270998	0.9786004	1.2685239	1.4342458	1.1309975	1.309439	1.3024776	1.161104	1.4116328	0.9164059	1.5041084	0.9510433	0.7285916	0.7010502
Phase-1 RCT-37	1.0284132	1.0003376	1.073987	1.0592281	1.0531334	1.0522472	1.0773978	0.9569738	1.0983311	1.0055625	1.0144075	1.1097153	1.0188518	1.0264846
Matrix metalloproteinase-1	0.9630557	1.6675236	0.9366548	0.9786496	0.877143	0.9281852	0.9691084	0.7707374	1.0801774	1.286742	1.0710963	1.1271043	1.0787078	0.8671973
Cyclin G	5.5452766	3.072167	1.1618812	1.7081167	1.1832772	1.1340841	1.041701	1.3977548	0.9148868	0.9581808	1.0044901	1.0929897	1.0835638	1.1368802
DNA polymerase beta	0.9663183	1.7564968	0.95522	0.9724148	0.9051448	0.7428951	0.9002935	0.9564673	1.0060097	0.9620535	0.9958712	1.0768665	1.1102712	
Phase-1 RCT-127	1.0762155	1.1973124	1.1409705	1.1414555	1.2466059	1.0917267	1.0629215	1.1384555	0.9136111	0.9259425	0.9668784	0.8966954	0.8966689	0.9335529
Multidrug resistant protein-2	4.7353415	2.4912171	1.091319	0.8236207	1.0885489	1.2430158	1.1257577	1.247048	0.9946356	1.1621588	1.1561549	1.5246801	1.1738935	1.0238371
Ribosomal protein S9	0.9079319	1.432359	0.9874634	1.127075	0.9874634	1.0236433	1.058497	0.8948858	1.0470507	0.9134198	0.8716283	0.8005883	0.8972151	1.0072577
Phase-1 RCT-12	1.0498336	0.9786567	1.1672189	0.9476773	0.9573671	1.1591169	1.0141881	1.0797205	0.861117	0.8936689	0.9765223	1.0831896	0.9951761	1.1291821
Beta-tubulin, class I	0.8217132	1.1047288	1.1848013	0.887288	0.9590552	1.1541145	0.8689295	0.768421	1.2084737	1.0185635	1.0286479	1.107597	1.0801651	1.1788443
Argininosuccinate lyase	1.534673	0.551445	0.9187176	0.8658473	0.9176588	1.3101095	1.2478269	1.0149401	1.5628184	1.4103422	1.3624986	1.2824941	0.9230627	0.9817164
Elongation factor-1 alpha	0.8813723	1.4783574	0.8932042	0.8690503	0.8515013	0.9249788	0.946063	0.7477521	1.1752241	1.3037202	1.0361601	1.1349288	0.8953901	0.8066639
Phase-1 RCT-55	0.7611299	0.7365172	1.0657697	2.724562	0.9693689	0.8310802	0.8766686	1.1409619	0.7689758	0.8207182	0.8844903	0.9054865	0.9470471	0.8631391
Macrophage inflammatory protein-1 alpha														
C-Hras	2.6966367	0.9792271	1.0316312	0.8831338	0.9187422	1.0564429	0.9925865	0.763697	0.8088356	0.7538148	1.0188313	0.7611284	1.2754446	1.118549
Multidrug resistant protein-1	0.9425293	1.2545228	1.1742551	1.0280901	1.405547	1.0569007	0.9770325	0.8015127	0.993977	0.8953718	0.9794278	0.9648464	1.084992	1.1016494
T-cell cyclophilin	6.6054926	2.7571132	1.1871798	0.9996639	1.1283069	1.1784421	0.9703734	1.1784421	1.080818	1.1886497	1.217331	1.4404448	1.2396317	1.1010787
Phase-1 RCT-185	0.8504638	1.8998427	0.9081715	0.9737377	0.8821054	0.7008191	0.8608836	0.6536566	0.9730764	1.0262281	0.9181312	0.923575	0.9845122	1.0534306
25-DX	0.6217701	1.1922091	0.6888641	0.7358791	0.7178532	0.7073047	0.8661876	0.7179268	1.1407553	1.1132104	0.9824638	0.9882316	0.764919	0.9358397
Ref-1	0.714602	1.1353059	1.1197815	1.2259307	1.1285962	1.1927092	1.2424228	0.9575113	1.24895	1.128952	1.1390948	1.2983685	1.2983685	1.0818872
Apolipoprotein CIII	1.1125329	1.2221881	1.6313787	0.9853124	1.0078123	1.0381919	1.1855222	1.0384986	1.054985	1.0445326	1.1055326	1.0803958	1.2402488	1.6018865
	0.8242241	1.525113	1.1189816	1.125669	1.3098873	1.1846015	1.1178908	1.2709482	1.2016684	1.0319034	1.0470655	0.8604653	0.6822078	0.7708933

NADPH quinone oxidoreductase-1 (DT-diaphorase) Pyruvate kinase, muscle	1.2557561	1.4717712	2.0343647	1.1834509	0.950388	1.0827268	1.2813818	1.0170316	1.7166524	1.4238283	1.7563319	1.5783402	1.6318972	2.9773736
	0.8119376	1.0635122	1.1544617	1.6451802	0.9138776	0.9254126	0.9065152	0.915594	1.0343441	0.9291596	0.9886635	1.1143997	1.0949875	0.9207206
(1) Gene expression data for 24 hour (timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Phase-1 RCT-191	1.1825393	0.8428741	1.1506138	0.9129049	0.9922228	0.9284492	1.336852	1.4646564	1.3258895	0.9705969	1.0260553	1.3154	1.0503707	1.0233844
Phase-1 RCT-189	1.226198	1.4455162	1.2032523	1.0133795	1.0618568	0.8419196	0.7843921	0.7556233	1.0172518	0.9615534	0.9974707	0.707485	0.9764776	0.8922575
Phase-1 RCT-179	1.0726161	1.2481211	1.058878	0.9335811	1.1462737	0.9050572	2.0659199	1.8741211	1.7251737	0.9472524	1.0971207	0.794477	1.032192	0.8451706
Phase-1 RCT-152	1.0164213	1.475296	1.2105607	1.0186201	1.3991824	1.461649	2.4885514	3.0684192	2.1494024	0.9267474	0.8689169	1.087118	1.1847246	0.8551868
Phase-1 RCT-123	0.9876808	1.005618	1.0056182	0.9500373	0.9463658	0.8279407	1.0456605	0.87194	0.8461917	0.8935726	0.8496512	1.1602521	0.9244103	0.9581271
Paraoxonase 1	0.6222873	0.6182429	0.7775973	0.731044	0.6989097	0.6336049	0.6069377	0.4822132	0.900111	0.7703271	0.7320197	0.7502915	1.310754	1.310754
Organic anion transporter 3	0.8742978	0.6332315	0.8260844	1.0516382	0.9928499	1.1492584	0.777347	0.6198384	0.8225944	1.1989499	1.2403215	0.844389	1.1526127	0.966641
N-hydroxy-2-acetylaminofluorene sulfoxidase (ST1C1)	1.3558375	0.9544282	1.1400536	1.0203187	0.6867953	0.9250276	0.3761568	0.1069238	0.239772	0.7895198	0.77608	0.587018	0.2502532	0.8187835
Integrin beta1	1.156407	1.1001058	1.0946438	1.1204656	1.1972289	1.2522796	1.582949	1.9727416	1.5494436	1.1614805	1.1738794	0.967523	1.665877	0.9891831
Insulin-like growth factor binding protein 3	0.7449726	0.7520943	0.9040868	0.9999999	0.8656419	0.9516107	1.3257849	0.6014795	0.8706371	1.2620434	1.3743546	0.9277635	0.4986485	0.9784006
ID-1	1.120886	0.996605	0.9757787	1.0063055	1.1466665	1.1317737	1.8312454	1.4758345	1.4420907	1.1872588	1.5167222	0.9753945	1.353634	1.353634
Hepatic lipase	0.633352	0.9366249	0.8871704	0.927583	0.7418401	0.5393927	0.5445957	0.4250339	0.4085319	0.9466595	0.8633831	0.8945092	0.4661904	0.7755381
Heme oxygenase	0.8179004	0.7776252	0.6889211	1.054812	1.042495	1.0663974	1.0806013	2.502657	1.1108916	0.9534873	0.8807262	1.1531132	0.8352884	0.9393536
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	1.0643631	0.9689578	0.7901226	2.2489514	0.8645093	1.0091199	0.7823181	0.4340071	0.4974363	0.839089	0.8189304	0.7425929	0.4522161	0.8570891
Epidermal growth factor	0.7938959	1.0199218	0.7484019	1.0575593	0.9148485	0.999947	0.8101736	0.7851437	0.8390522	1.0683387	1.0456637	0.8550362	1.0460306	1.0301778
c-myc	1.1600162	0.7798084	1.3268955	1.2134513	0.5801836	1.0636662	0.8349579	1.6828226	1.1433551	0.9333054	0.9119935	1.6357614	0.896512	0.9532857
Carbonic anhydrase III	0.6017597	1.7164182	0.5950066	0.5902854	0.8980871	0.1186556	0.3154139	0.0981724	0.1170097	0.9088653	1.0083947	0.682052	0.4819486	0.9202982
Beta-actin	1.1000493	1.1381011	0.8437967	0.9697028	1.425739	0.9416215	1.705575	1.265545	1.5824992	2.3040056	2.0273225	1.07393	2.7878108	1.2672378
Bax (alpha)	1.2905521	0.9723958	1.2563033	1.0679818	1.332116	1.4372963	2.6248136	3.9086614	3.0786192	1.2366284	1.2369996	1.3569362	1.2693458	0.933848
Alpha 1 - Inhibitor III	0.6692346	0.6614468	0.8952176	0.6786019	0.8037288	0.4356084	0.4971736	0.1984895	0.3033326	0.8217765	1.0460413	0.6627238	0.4861853	0.7628263
60S ribosomal protein L6	1.064129	1.2614971	1.0416728	1.0071745	1.9809026	2.0688612	4.097095	4.045918	3.1642585	0.9039314	0.90144	0.8838301	1.149438	1.0282967
Phase-1 RCT-117	0.7606593	1.1731318	0.9031236	1.152223	1.1572988	0.9034136	0.9435641	0.5433537	0.8113733	1.0592916	1.153077	0.8978454	0.8736454	1.0590721
Phase-1 RCT-102	0.7510501	0.562187	0.6684065	0.8263866	0.5081999	0.4625911	0.5403593	0.1629469	0.3218882	0.856752	0.8379034	1.2560108	0.1936154	0.8372141
3-hydroxyisobutyrate dehydrogenase	0.8245567	1.0574955	0.8511097	0.8738389	1.0029895	0.8101313	1.0050355	0.7821577	0.8853831	0.9804944	1.049768	0.7488585	0.9559243	1.0666828
ATPase inhibitor (rat mitochondrial IF1 protein)	1.1606925	1.284846	1.0856704	0.7636657	1.2291912	0.7398764	1.5151533	1.1272709	1.103547	0.7509297	0.9233325	0.8848574	0.6961141	0.9376382
Alpha-2-macroglobulin	1.1288689	0.7983252	0.7411193	1.0926673	0.8258417	1.333742	0.6123468	0.537437	10.8864	0.8460496	0.9185173	0.7109078	1.376476	0.7513375
Phase-1 RCT-137	0.8817021	1.2939058	1.1053294	0.7888757	0.8316168	1.3951693	0.9987647	0.8970311	0.8970311	0.7719414	0.9292721	0.7513132	0.750086	1.1532505
Phase-1 RCT-252	0.8428423	1.1304859	0.8692793	0.7688876	1.4754044	0.7099103	1.6806287	2.1088016	1.3155844	0.7723667	1.134687	0.6007874	1.8449084	1.3955609
Phase-1 RCT-65	1.1157068	0.8537874	1.134871	1.043522	0.860897	1.1366333	1.3903891	1.0703056	1.2085007	1.1739428	1.1806283	1.3234937	1.6624569	1.1387786
Liver fatty acid binding protein	0.969098	0.6954176	0.9089215	0.3963215	0.6076953	0.5953544	0.6394367	0.1219566	0.3543471	1.4778444	1.098494	0.7643772	0.3482527	0.9220613
Carbamyl phosphate synthetase I	0.8372408	1.1479684	0.8697147	0.7127037	1.4801992	0.6817831	1.7591617	2.338573	1.4254993	0.776829	1.1883606	0.5561633	1.9909643	1.4760023
Calnexin	1.052368	0.7383019	1.117	0.96753	0.9886616	1.1022645	0.7400711	1.5913497	1.1105604	1.1344666	1.0432018	1.5495086	0.8971519	0.7638058
Transferrin	0.7787316	0.828974	0.7831761	0.7153317	0.5126207	0.5141993	0.4829778	0.3340674	0.2878656	0.9173054	0.9384143	0.8358054	0.6669698	1.0750316
Allatoin B1 aldehyde reductase	0.9522463	0.7044434	0.8994162	0.803943	0.8629971	0.7075055	0.6874692	0.3081197	0.5689926	0.8742587	0.8572652	0.9458898	0.6568352	0.7015384
Phase-1 RCT-15	1.1295125	1.0256214	1.1428187	1.0787915	1.047791	1.1213465	1.0916415	2.0378093	1.2427815	1.1823878	1.0941051	1.2732364	1.5478154	1.1188401
Insulin-like growth factor I	0.7347687	0.7698458	0.8358119	0.848808	0.7296041	0.8255787	1.0244377	0.6320408	0.7238303	1.2214048	1.2864138	0.7688987	0.4316746	0.9099849
Sodium/bile acid cotransporter	0.8794049	0.599444	0.846965	1.0990115	1.0279434	0.8773332	0.6735982	0.2803164	0.7332801	1.0687011	1.0116428	0.7821948	0.4844858	0.9022802
Organic cation transporter 3	1.0066356	1.2306463	1.014775	1.044702	1.624847	1.7855703	3.3090835	3.2877293	2.7987916	0.938944	0.9030965	0.9971304	1.0487641	1.0399148
Gadd153	0.9737433	1.1167201	0.966002	1.0698527	1.2216476	1.2547026	1.7194129	2.3482122	2.1793523	1.107138	1.0884288	1.2165945	1.2304094	1.0477052
Phase-1 RCT-109	1.1508441	1.0600932	1.1000482	0.8540916	1.9160272	1.8740228	0.7387065	0.8440098	0.9528928	1.3008603	1.4978038	0.805875	1.4498234	0.8708095
Phase-1 RCT-88	0.8234285	0.8871763	1.1379418	1.1482127	1.0050626	0.954527	0.7712234	0.5622494	0.6990289	0.7544847	0.7727882	0.8997526	0.9204478	0.9590117
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.0114898	1.1651388	1.023801	0.804633	1.3560141	1.4888389	1.7611756	1.7884897	1.6240944	0.9811337	1.0571078	0.8291071	1.3405486	1.0407757
Glucose-regulated protein 78	0.8793551	1.3507808	1.028638	1.0035524	2.0084694	1.5085558	2.0283525	1.3342218	1.9431802	1.3781518	1.2836183	0.5750642	1.6278014	1.3285486
Ribosomal protein L13A	1.3000224	1.1285212	1.1978901	1.2428577	2.2039905	3.2626903	3.2222893	2.5970266	1.4579102	1.6483915	0.8601038	1.6163573	0.8677086	0.8677086
Monocytic chemotactic protein receptor (CCR2)	1.018106	1.3313829	1.2484472	1.0345764	0.9872893	1.109927	1.1846683	1.3560402	0.9134571	0.8293504	0.9161365	1.7072501	0.9161365	1.0207207
Fas antigen	1.2569524	1.2571596	1.0056049	0.9293813	1.1938522	1.1938522	1.1938522	1.1938522	1.1938522	1.1938522	1.1938522	1.1938522	1.1938522	1.1938522
Calpactin I heavy chain	1.0945944	1.0150394	1.0288849	1.132874	1.072285	1.1169147	1.2655613	1.2104383	1.277798	1.2291756	1.2400712	1.2377505	1.0774098	1.0606898
Uncoupling protein 2	1.29301	1.2453775	1.1939926	1.1184211	1.1337523	1.0837348	1.3765388	1.418773	1.4214371	1.0358721	1.0957801	1.4018011	0.9256125	0.777016

Table 35

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Phase-1 RCT-168	0.955419	1.1754576	0.8905887	0.7700366	0.6781263	0.7513695	0.5750061	0.2586505	0.4003937	1.0856777	0.9271205	0.8776507	0.8368063	1.1285528
Phase-1 RCT-154	0.9400862	1.2462798	1.0049834	1.0083412	2.2881477	2.3830356	4.4043444	4.4043444	4.4043444	0.937997	0.9705533	0.9576501	1.115014	1.1224256
Superoxide dismutase Mn	1.1319547	2.0200398	1.6057551	1.2421241	1.4288033	1.7897333	2.8132863	3.631148	2.358562	1.1844008	1.1525052	0.8361789	1.1752942	0.9713565
Phase-1 RCT-214	0.8696653	0.9585503	0.8533242	0.9597128	0.820576	0.820576	0.820576	0.820576	0.820576	0.820576	0.820576	0.820576	0.820576	0.820576
Phase-1 RCT-225	0.7760323	0.4345704	0.7331803	0.9199421	0.820576	0.820576	0.820576	0.820576	0.820576	0.820576	0.820576	0.820576	0.820576	0.820576
Phase-1 RCT-181	0.8042991	0.7798806	0.9033365	1.1002562	1.438444	1.3354911	1.5901165	1.0510281	1.1358595	0.9277747	1.0243663	0.9455357	0.9942844	1.145550
Nucleoside diphosphate kinase beta isoform	0.8089485	0.9498586	0.8216103	1.0880276	1.4795583	1.2451506	2.1025286	1.9090911	1.7552234	1.1120044	1.0174289	0.9342405	1.6182374	1.257188
Extracellular-signal-regulated kinase 1	0.870538	0.7788072	0.8529602	0.6243116	0.8044816	0.4902076	0.6140681	0.5344649	0.5280631	0.9109168	0.9754714	0.7667831	0.5552625	0.9132408
[Ribosomal protein L6]	0.9921517	1.1173405	1.0331165	0.9938306	1.7813826	3.9713085	3.7813826	2.8316884	0.9323775	1.0297458	0.8493095	1.2114961	0.9543855	0.9543855
Aldehyde dehydrogenase, microsomal	0.9661763	1.0421158	0.9389474	1.0036554	1.2703005	1.0435328	1.2191534	0.9858865	0.9844556	1.0687747	1.1520464	0.8742379	0.8473994	0.936694
p53	0.9233488	1.1121048	0.9235815	0.9802263	1.1633922	0.9943436	1.3756641	1.8704671	1.8200306	0.9119839	0.906875	0.9641649	0.9553383	0.8967571
Phase-1 RCT-239	1.0626191	0.9288008	1.1390542	0.8708341	0.9535451	1.0813566	1.259676	1.1738157	1.6084131	1.1130128	1.1102828	1.3730361	0.8380308	0.9768851
Macrophage inflammatory protein-2 alpha	1.1380638	0.9401254	1.3124572	0.9919074	1.1185317	1.1487525	1.4402591	2.1188757	2.1920779	1.0363132	0.9630271	1.2813107	0.9745143	0.9293999
IgE binding protein	1.1743172	1.9268948	1.051405	1.0970899	1.2579374	0.9718072	1.781124	2.930634	1.5511414	1.0512024	0.9398536	1.3695757	0.966387	0.9918483
Phase-1 RCT-205	1.117025	1.7558326	1.0296993	0.9056635	0.976244	0.9664341	0.9356605	1.4148328	0.8011008	0.9376333	0.9175087	1.1424867	0.8525528	0.9230769
Melanoma-associated antigen ME491	1.5448022	1.232768	1.1828952	2.1181684	1.708025	1.0778925	2.480578	1.9088544	1.8986208	0.994103	0.9981484	1.09723	1.251004	0.9720487
Phase-1 RCT-242	1.2483843	1.107811	1.4089146	0.8617709	0.9050089	1.0695999	0.8146787	1.1940968	1.0014788	1.1034844	1.0132798	1.6644111	1.0566189	0.9509832
Endiase alpha	1.034378	0.9679791	0.7521752	2.085603	2.2568574	2.2174652	2.6117344	1.8620098	1.7663839	1.1835247	0.9912332	0.7832362	2.0239657	1.3281403
Thymosin beta-10	1.0511589	1.2702259	0.8051984	1.2473649	1.6988895	1.5861318	2.4944253	2.0286629	2.0181258	1.3100605	1.4969864	0.8640092	1.3471377	0.884974
Cofilin	0.8631229	1.051084	0.9577898	1.0442724	1.4381027	1.2833525	1.6438514	1.457137	1.3132858	0.9478236	0.8875892	0.8927891	1.07763	1.1043705
Carbonyl reductase	1.0569657	1.0395573	1.1370679	1.032963	0.944806	2.4768586	0.9180734	1.011152	1.1157993	0.9447866	0.8836669	1.4860344	0.9953131	0.946986
MAP Kinase kinase	0.9585434	0.9788318	0.90606	1.2150109	1.0318556	1.1202006	1.2011533	1.389286	1.2024299	1.053685	1.0350316	0.935824	0.8967357	1.1037039
Phase-1 RCT-162	1.0025722	0.97233	1.0056894	1.1152316	1.1698551	1.2903702	1.1775879	1.6867311	1.522107	0.9206872	0.9077973	1.2706705	0.9313363	0.9537862
Phase-1 RCT-72	1.0954493	1.0639043	1.0577831	1.0436133	1.0338454	1.1772991	1.776959	1.6867311	1.33911521	2.9236145	0.989688	0.9037337	1.1861774	1.0670441
Ribosomal protein S8	1.0098487	1.0723845	1.0577004	1.1718295	1.884887	2.162969	3.6621415	3.3911521	2.9236145	0.989688	0.9037337	1.1861774	1.0670441	0.9066035
Proliferating cell nuclear antigen gene	1.1566243	1.023866	1.4357682	0.8801625	0.6795334	0.97543	0.9041888	1.04379	0.9830304	0.966058	0.9334428	1.1865368	0.984168	0.906026
Phase-1 RCT-192	0.883417	0.88187	0.9416277	0.7374161	0.9454689	1.1393617	1.6849636	0.9838191	1.0390985	1.0116512	0.8805418	1.2401581	1.238026	1.238026
kB-a	1.0376899	1.081449	1.0303317	1.1091301	1.1397011	0.9908223	1.3391433	1.2742853	0.9567115	0.9545653	0.9796897	1.3525469	0.9688512	0.9688512
Endogenous retroviral sequence, 5' and 3' LTR	1.1356703	0.8708346	0.9489298	0.9027519	0.8773589	0.9999999	1.0143306	0.9068097	0.7128742	1.213356	1.2235526	0.8278691	2.3012395	0.8011342
Phase-1 RCT-37	0.975009	1.0361996	1.0092484	1.0827104	1.3925552	1.3491838	1.8995149	1.4997816	1.5984524	0.9802339	0.9762853	0.8459132	1.1364017	1.0073923
Matrix metalloproteinase-1	1.0805334	0.915244	1.0991398	1.1867055	1.3227838	1.3109212	1.8990906	3.1198218	2.247403	1.3262819	1.3320858	0.8850892	1.3429927	0.9671366
Cyclin G	1.1416441	1.2275662	1.2789505	0.9875488	1.5124706	1.2798419	3.440135	8.628878	4.770808	1.2254753	1.5915552	1.2039192	1.1884351	1.1884351
DNA polymerase beta	0.9069923	1.0130097	0.9630096	1.0409628	1.1214626	1.1457049	1.4635317	1.3669251	1.2760171	1.0109853	0.9297993	0.8683913	1.0195237	1.1464632
Phase-1 RCT-127	0.9801484	1.0457485	1.1458557	0.9068652	1.0483762	1.0344626	1.3987466	1.6703781	1.3068986	0.970587	0.9787633	1.2734109	1.034659	0.9705872
Multidrug resistant protein-2	1.0635747	0.6892784	1.2040455	1.3219597	1.0919524	1.3476552	3.5141747	3.4177349	3.1648946	1.0715781	1.0003902	0.9202215	0.9192066	0.9184761
Ribosomal protein S9	0.9932442	1.0393901	1.0239768	0.944808	2.0597034	1.9918705	2.6471243	1.9152645	2.0636494	1.0059747	0.9552453	0.7100436	1.3048372	1.1824383
Phase-1 RCT-12	1.1744244	1.0385827	1.1618084	0.9293912	0.9847956	0.9065255	0.883176	0.9742653	0.7660527	1.1598888	1.0943879	0.9641975	1.1685371	1.1618031
Beta-tubulin, class I	1.3497293	1.0560118	1.3553591	1.024464	1.5757039	1.614378	2.2946734	1.4241888	1.2904816	1.1570295	1.0440573	0.89336613	1.1601248	1.1618031
Argininosuccinate lyase	1.1479695	1.0996384	1.1858492	1.0318185	1.400254	3.0896962	5.4212594	2.3782387	2.3782387	1.1350992	1.277719	0.8853934	3.328848	1.3016456
Elongation factor-1 alpha	0.8436397	0.82741	0.876581	0.953771	1.2205302	1.0613021	2.113279	2.1220472	1.6371182	0.9851635	1.0433565	1.03510042	1.3022339	1.2128466
Phase-1 RCT-55	1.0185466	1.0482085	1.0882783	0.9723486	0.9865327	1.0888146	1.6888674	1.3801666	1.598299	1.1452774	0.97103	1.4097662	1.0168848	1.0464588
Macrophage inflammatory protein-1 alpha	1.1809922	1.3437251	1.3824635	0.9337041	0.8573542	0.9841824	0.8863171	0.9230972	1.0700648	0.9369015	0.9084627	1.7060608	0.8286141	0.9284511
c-H-ras	1.1547298	0.9677838	0.9584786	1.0713621	1.3540628	1.4434841	2.0440903	1.7892753	1.6705265	1.115087	1.1782086	1.0584335	1.384305	1.0144197
Multidrug resistant protein-1	1.1038035	0.6939005	1.2887087	1.1624674	1.6557432	1.9675676	5.0458617	7.384141	7.3518043	1.121584	1.0503424	0.9900291	0.985581	0.871274
T-cell cyclophilin	0.8570503	1.0316645	0.9251252	1.085256	1.2782106	1.1775538	1.5258083	1.3614658	1.1560038	0.9775799	0.9108141	0.7892498	1.0598882	1.1782238
Phase-1 RCT-185	0.8264003	0.9322874	0.805021	0.9971188	0.7111179	0.5125071	0.5316933	0.3822102	0.3980739	0.7973408	0.8463898	0.7658559	0.6885737	0.8749062
25-DX	0.9372149	0.7882471	0.8662107	0.8427508	1.106395	0.8038504	0.9266805	0.5823775	0.7346732	0.8957489	1.046537	0.7730401	1.0096067	0.7517896
Ref-1	1.2169021	1.2365209	1.1433469	1.1780521	1.0908308	1.2381445	1.928997	1.5383164	1.3712323	0.9726511	1.0595975	1.1531125	1.0285712	1.0285712
Apolipoprotein CIII	0.8765931	0.9606628	0.8188712	0.829578	0.6892585	0.5908861	0.5481198	0.5461478	0.502178	0.891026	0.9310297	0.8529257	0.8173271	0.8642688

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NADPH quinone oxidoreductase-1 (DT-diaphorase) Pyruvate kinase, muscle	1.5874805	1.6113678	1.2255836	1.9117788	1.2035342	1.2773225	1.0065181	0.8532323	0.8480012	1.187104	1.1019137	1.1113366	1.5559	1.2621051
	0.9015758	0.9270653	0.9446133	1.2178328	1.2472234	1.2232014	1.8739325	2.1357522	1.6510845	0.9407241	1.0512626	1.0550194	0.9875792	0.6904371
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed, no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

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Table 35. Expression Data for 24 Hour															
Timepoint (1)															
Compound-Dose (2)															
Animal Number (3)															
Liver Toxicity Necrosis Classification (4)															
Gene Name (5)	CPHOS 100	CYCA 20	CYCA 40	CYCA 80	CYCA 160	CYCA 320	CYCA 640	CYCA 1280	CYCA 2560	CYCA 5120	CYCA 10240	CYCA 20480	CYCA 40960	CYCA 81920	CYCA 163840
Phase-1 RCT-78	0.9484483	0.9794971	1.3060156	1.167088	0.9789183	1.1268662	1.0271409	0.9016074	0.947702	0.9524189	0.8143447	0.8395853	0.9415394	1.2661366	1.8615514
Gamma-actin, cytoplasmic	1.3634928	1.0745239	1.0162584	1.0903789	0.9612417	1.3817676	0.9044261	1.0504767	0.9883521	1.3778216	1.2107049	1.0015125	1.1647716	0.9755514	0.9755514
Matrix F/G	0.9591115	1.0260894	1.2102444	1.2869785	1.1748001	1.2187382	1.4787639	1.1675302	1.2280709	1.233805	1.1326349	1.2895017	1.2038557	0.7044983	0.7044983
Zinc finger protein	1.1068206	0.8486365	0.8013943	0.967137	0.9268166	0.9487515	1.008149	0.9335774	0.9732305	0.9732305	0.9732305	0.9913458	0.9490584	0.9500951	0.9500951
Cathepsin L, sequence 2	1.1702825	1.1768477	0.9187442	1.053295	1.325772	1.6699927	1.2600442	1.1278893	0.7797205	0.9383381	1.1526314	1.1894022	0.9928828	0.8296714	0.8296714
Gadd45	0.7804642	1.0458636	0.989972	0.9870908	1.1308373	1.6655682	1.1475778	0.9898865	1.1327127	0.61942	0.9538003	0.751423	0.7800998	0.8870292	0.8870292
Phase-1 RCT-144	0.985715	0.624965	0.9665857	0.8624127	0.8728544	1.0502961	0.8548957	1.0950401	1.1128432	1.0872258	1.0149844	1.0494667	0.997117	1.0155392	1.0155392
Phase-1 RCT-145	1.0006781	0.7794119	0.8502093	0.8403948	0.9526797	1.0197982	0.9157196	0.9050401	1.1128432	1.0872258	1.0149844	1.0494667	0.997117	1.0155392	1.0155392
Phase-1 RCT-50	0.9663577	0.8396751	0.9605634	0.8938182	1.0644314	0.9487388	0.9041121	1.1780765	1.0487024	0.7078858	1.1814307	1.1186703	1.0143969	1.1409343	1.1409343
Phase-1 RCT-92	0.870823	0.9759136	0.9620701	0.8869293	0.8174908	0.7296586	0.7213025	0.8632377	0.8299645	0.8372836	0.8369598	0.8691601	0.823132	0.8204704	0.8204704
Phase-1 RCT-89	0.8911229	1.1618327	1.0946219	0.8981101	0.7978234	0.9068809	0.932035	0.8632377	0.8299645	0.8372836	0.8369598	0.8691601	0.823132	0.8204704	0.8204704
14-3-3 zeta	1.0937468	1.253323	1.0906231	1.1158351	0.9816425	1.1151539	1.0103863	1.1247512	1.1677564	1.2318082	1.2250646	1.095514	1.220174	1.0377959	1.0377959
Dynamin-1 (D100)	0.9409692	0.8652225	1.1071768	1.0250887	0.9364979	0.832732	0.9573133	1.0419639	0.8254351	0.9604431	0.9828914	0.9810203	1.0125628	0.8897803	0.8897803
Insulin-like growth factor binding protein 1	1.1548257	1.2828089	1.408841	1.4273657	1.1655009	1.1625943	1.3810075	0.9668605	0.9254602	1.0841761	1.0126386	0.9537184	0.873971	0.5834418	0.5834418
L-glutono-gamma-lactone oxidase	0.7459893	0.8787201	0.6397069	0.7580304	0.670311	0.6397245	0.712658	0.9605832	0.7659883	1.0206794	0.9258762	1.0382137	0.8731256	1.0264062	1.0264062
Ornithine decarboxylase	1.2927084	0.941588	0.8631294	1.0292195	0.8723652	0.9349076	0.8576096	1.313035	1.2811236	1.3389722	2.094062	1.029791	1.1037291	1.9170657	1.9170657
PAR interacting protein	0.9499066	0.9062479	1.0354124	0.9345446	0.9905648	1.0633708	0.8708044	0.9578987	1.0496667	1.0014151	0.9535548	1.0086327	1.0243137	0.9978563	0.9978563
Phase-1 RCT-126	0.8733803	1.3684152	1.3334267	1.0783281	0.8618171	0.7879093	0.9581407	1.0203365	0.8346993	0.9047681	0.8719711	1.0037056	1.0275246	0.8416228	0.8416228
Phase-1 RCT-180	1.1933385	1.0168844	0.9215276	1.100195	1.0863346	1.0267407	1.2216153	1.0317767	1.0436779	1.0305292	1.0436779	1.0657126	1.0740765	0.9564257	0.9564257
Phase-1 RCT-182	0.9999412	1.2700888	1.2598532	0.9704698	0.8661587	1.0477692	0.9196985	1.0905079	0.9612501	0.935752	0.8833732	0.8958973	0.9529584	1.0180123	1.0180123
Phase-1 RCT-207	1.1437858	0.8366748	1.0595306	1.1121846	0.8409313	0.9441503	0.9534003	1.4934056	1.1954647	1.4775584	1.9895834	1.4322838	1.8315132	0.8988502	0.8988502
Phase-1 RCT-213	1.2641286	0.9356715	1.0046576	1.1963956	1.2202446	1.2503719	1.2359508	1.4176707	1.132253	1.3200431	1.9172125	1.4247801	1.5040355	0.8700756	0.8700756
Phase-1 RCT-256	0.7931778	1.0291848	1.0287266	1.0287266	0.8789993	0.9955706	0.9703758	0.9809441	1.0029348	0.9519202	0.9829316	0.9927167	0.8855316	1.4883032	1.4883032
Phase-1 RCT-258	1.1131915	0.8311171	0.902467	0.8789993	0.9955706	0.9703758	0.9809441	1.0029348	0.9519202	0.9829316	0.9927167	0.8855316	1.4883032	1.4883032	1.4883032
Phase-1 RCT-264	0.7446648	1.0363969	1.2320304	0.7722422	0.4160352	0.8194832	1.3019388	1.2222999	0.9791482	0.9791482	0.9791482	1.1851102	1.055208	0.9271801	0.9271801
Phase-1 RCT-271	0.6939642	0.8282959	0.8386124	0.922964	0.7056659	0.4966346	0.7670422	0.952562	0.8414075	0.9791482	0.9791482	1.1851102	1.055208	0.9271801	0.9271801
Phase-1 RCT-288	1.0077139	1.2757496	1.3390166	1.198772	0.7762905	0.9089493	1.0402434	0.9438787	0.8805234	0.7579634	0.8613958	1.0593352	0.9401083	0.7449552	0.7449552
Phase-1 RCT-38	0.7883769	0.75925	0.9110029	0.9488691	0.7813118	0.8573137	0.9862575	1.079798	0.8578972	0.9823553	1.0842976	1.2117375	1.044451	0.8952225	0.8952225
Phase-1 RCT-39	0.9938932	0.9053082	0.8490759	0.9213372	1.1308005	1.1195198	1.0796058	1.0506671	0.984838	1.0810317	1.2475129	1.1666921	1.104852	0.9003261	0.9003261
Phase-1 RCT-68	1.0606742	0.8869659	1.0785478	1.0822141	1.0803603	1.2140108	1.1720673	1.2886081	1.1694928	1.2695768	1.4197143	1.161459	1.1425786	1.0827081	1.0827081
Phase-1 RCT-83	0.8107873	1.1899189	0.9430864	1.3082712	0.8549936	0.9839307	1.212808	0.9485021	0.837167	0.8621183	0.7989304	0.8486944	0.9205629	0.8922109	0.8922109
Phase-1 RCT-33	0.941996	0.8195126	0.9264725	1.1017169	0.9258663	0.9367098	1.0599449	0.7668174	0.9716932	0.9411978	0.7624822	0.8541378	0.9035047	0.8985426	0.8985426
17-beta hydroxysteroid dehydrogenase, type 2	0.4556468	0.7315514	0.6742402	0.6945379	0.6129316	0.5960956	0.7412709	0.2831113	1.5418183	0.2737214	0.3835117	0.3544665	0.3098543	0.3467	0.3467
Senescence marker protein-30	0.7754318	1.5519705	1.1176964	0.9005886	0.680923	0.6797705	1.114304	0.1751853	0.5998646	0.2439391	0.0909845	0.1246195	0.1577867	1.0460982	1.0460982
Ribosomal protein S17	1.1479886	1.2766603	0.9923449	1.0618263	0.9263767	1.3398372	1.2199057	1.061134	0.8206289	0.9380397	1.0008417	0.8710777	0.8536615	0.9029493	0.9029493
Phase-1 RCT-83	0.8979311	0.7972006	0.9840882	0.9287447	0.7615814	0.8230061	0.8780805	0.590431	0.7888895	0.525788	0.3819335	0.5376735	0.5923828	1.0104488	1.0104488
Phase-1 RCT-49	0.9460527	0.8171284	0.9188861	0.9228668	0.8637526	0.9908863	0.8587477	1.0142572	0.9212242	0.8948476	0.8914739	0.945809	0.9605337	0.9605337	0.9605337
Phase-1 RCT-48	0.9022799	0.93695	1.3176322	1.0085266	0.8498268	0.7513765	0.8782629	0.9237121	0.9971122	0.9367993	1.0670631	1.0553341	0.9755881	0.9225808	0.9225808
Phase-1 RCT-40	0.9196776	1.3069608	1.1720355	0.9759466	0.6401215	0.8725444	0.8782629	0.9237121	0.9971122	0.9367993	1.0670631	1.0553341	0.9755881	0.9225808	0.9225808
Phase-1 RCT-296	0.8015903	0.763848	0.7476022	0.4760074	0.2583476	0.2967772	0.2583476	0.5101435	0.7218407	0.3445743	0.1250304	1.2532243	1.1271898	1.0429481	1.0429481
Phase-1 RCT-295	1.0489185	1.077714	1.0427506	1.0050138	0.847999	1.0633425	0.8588006	0.9139153	0.9513171	0.9427471	1.1561921	1.2366004	1.1146882	1.076194	1.076194
Phase-1 RCT-291	0.845613	1.0258198	0.9332075	0.895806	0.9139153	0.9513171	0.9427471	1.1561921	1.2366004	1.1146882	1.076194	1.0429481	1.0429481	0.966849	0.966849
Phase-1 RCT-270	0.8310339	1.1744232	1.3081051	0.9844962	0.9266729	1.0507302	0.8232746	1.0886072	0.8900894	0.9614574	0.8721803	0.8736677	0.8736677	0.9461702	0.9461702
Phase-1 RCT-241	1.0945207	0.954865	0.7859155	1.4552926	1.3767824	2.2789394	2.1868176	1.0308824	0.9649197	1.0331721	1.0325253	1.0312617	0.8729878	0.8739892	0.8739892

Phase-1 RCT-191	1.0512861	0.8547019	0.8194531	0.9079883	0.8570923	0.9010302	0.8206368	0.8987376	1.1407268	1.1853619	1.1184281	0.9850183	0.8941214	1.2241559
Phase-1 RCT-189	0.9570363	1.2756166	1.1144452	1.2307031	1.0198887	1.0475286	1.2125869	0.9410226	1.3702569	1.2251792	0.9856558	1.2888469	0.9710921	1.0621101
Phase-1 RCT-179	0.9044926	1.1046842	1.0288331	0.9401223	0.780566	0.9349622	0.8429226	0.9436284	0.885917	0.789137	0.8260183	0.9782131	0.8568198	0.7720468
Phase-1 RCT-152	1.0164545	1.0511379	0.9930704	1.0813404	1.0562707	1.0659944	1.0665977	1.0189305	0.8409632	0.8518023	0.9838529	0.9107038	0.9068822	0.7158048
Phase-1 RCT-123	0.9684889	0.8492146	0.9458128	0.9414268	1.1219648	0.9934461	1.0665977	1.0932898	0.10736104	0.9703695	1.1874835	1.0689332	1.0516445	1.1134478
Paroxonase 1	0.8712883	1.1172482	0.9117747	0.7901064	0.595261	0.6978524	0.7339647	0.5693803	0.7328787	0.5723285	0.4837934	0.6075811	0.5960118	0.9797856
Organic anion transporter 3	0.9397717	1.0870864	0.9176457	0.9168134	1.076507	0.9376372	0.739915	1.2515669	0.8646781	0.7035663	1.2976725	1.0973067	1.0953355	1.2188452
N-hydroxy-2-acetylaminofluorene sulfoxyltransferase (ST1C1)	0.5332261	0.9321487	1.0513389	0.8952802	0.6630721	0.7701613	0.5906033	0.7097396	0.7082622	0.4748208	0.4180065	0.5772809	0.6181135	0.9590185
Integrin beta1	1.0638394	1.0403911	1.0899867	1.1697568	1.207472	1.1117179	1.0817413	1.3321288	1.1186386	1.1327616	1.4544283	1.1433564	1.1473787	0.9149853
Insulin-like growth factor binding protein 3														
ID-1	0.7368286	1.0357935	1.0737177	0.9467605	0.6871923	0.8182897	0.7782388	0.8270478	1.0142798	0.7618303	0.8708798	0.9937779	0.8737868	
Hepatic lipase	1.2512331	1.085807	1.0849609	1.0751164	0.8859658	1.0061654	0.9649399	1.172157	1.1538845	1.160872	1.1738592	1.1933732	1.1350969	1.1631083
Heme oxygenase	0.6520101	0.9184179	0.8205795	0.924792	0.6543936	0.821842	0.690928	0.539937	0.662897	1.124715	0.8159776	1.2627561	1.3783836	0.6951066
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	1.030465	0.8380553	1.01958	1.138625	1.0007648	1.2854139	1.425625	0.5271825	1.1013604	0.7973837	0.6117483	0.6303521	0.5957731	0.9149236
Epimeric growth factor														
Carbonic anhydrase III	0.6231273	0.8345837	1.1372168	0.4795358	0.2886169	0.1849498	0.2028372	0.2070855	0.6654532	0.1586079	0.0860025	0.1409493	0.1500412	1.2480069
Beta-actin	1.4041195	1.2431613	1.0684727	1.1757787	0.9432045	1.2399414	0.9669534	1.0199512	1.0837424	1.2858558	1.5934169	1.464582	1.5635859	1.2806216
Bax (alpha)	1.0653334	1.1471728	0.9765305	1.1394238	0.4988447	1.0986015	1.0887809	1.3836203	1.5180525	1.557838	1.5934169	1.464582	1.5635859	1.2806216
Alpha 1 - inhibitor III	0.5850105	1.1186627	1.1048896	0.7858807	0.552784	0.578092	0.5363697	0.5170906	1.1284292	0.6118412	0.4955207	0.643531	0.5539833	1.4102213
60S ribosomal protein L6	1.1633608	1.3303285	1.1177204	1.246229	1.0791581	1.4194587	1.1461912	1.1265074	0.8783677	0.9883308	1.2490304	1.1080885	0.982097	0.7789582
Phase-1 RCT-117	0.8862536	0.9127992	1.5104566	1.3473152	1.298784	1.3628329	1.187847	0.8835576	0.7045741	0.8635302	0.6457098	0.6992543	0.9614768	
Phase-1 RCT-102	0.4843836	0.7290464	0.9393332	0.5187361	0.6336567	0.3928867	0.3343534	0.6534954	0.9108908	0.6782553	0.5160103	0.6908931	0.7054934	0.927115
3-hydroxyisobutyrate dehydrogenase	0.9041752	1.2934505	1.0470141	0.9515516	0.779919	0.827655	1.0004078	0.7364823	0.8431144	0.8473383	0.7373608	0.9851749	0.6221082	1.0493352
ATPase inhibitor (rat mitochondrial IF-1 protein)	0.91498	1.3097916	1.1284551	0.9818565	0.6880316	0.8239262	0.8331651	0.5599416	0.7400284	0.5244647	0.3873909	0.4850478	0.5069025	0.7114059
Alpha-2-macroglobulin	1.1931322	1.398006	1.34228	0.9760035	1.5143198	3.7688572	3.641365	0.4673018	1.0138469	0.6150506	0.5416076	0.5267723	0.5899175	1.1513122
Phase-1 RCT-137	0.9417717	1.1353768	1.0359992	0.9350271	0.7090305	0.8122262	0.9399968	0.6255344	0.6574938	0.8283865	0.5985761	0.6085627	0.5601373	0.8410449
Phase-1 RCT-252	1.1561236	1.0807412	0.9466151	0.909766	0.7947239	0.8039981	0.9158813	1.6648535	0.9326198	1.4003678	1.9786063	1.9868429	1.7242062	0.7312009
Phase-1 RCT-65	1.0949265	0.7253302	0.8041676	0.9139243	1.0784854	1.0185388	0.964945	1.1604254	1.2968013	1.362569	1.3287864	1.3063271	1.3071054	1.1113621
Liver fatty acid binding protein	0.7032923	1.2566397	1.3157	0.9534683	0.364544	0.6956245	0.7087674	0.5984197	0.8346289	0.509371	0.3897052	0.4439874	0.4668869	0.7139377
Carbamyl phosphate synthetase I	1.1761247	1.0537703	0.898905	0.8587108	0.7499886	0.8528347	0.9445739	1.818814	0.9287933	1.7339363	2.3461616	2.593192	2.0618658	0.7920148
c-Jun	0.8561152	1.0576034	0.9763591	1.0821173	1.1570458	1.019149	1.0372682	1.4035677	1.3333827	1.3333013	1.7341735	1.3622386	1.3648615	1.1261715
Transhyalrin	0.6639538	0.8416573	1.0226023	0.6438274	0.3471857	0.4123118	0.5059201	0.5974784	1.007511	0.6963937	0.6509537	0.5647217	0.6017239	1.2602017
Altoxin B1 aldehyde reductase	0.7559094	0.9160531	0.8863881	0.803571	0.7299172	0.8515291	0.7900069	0.9248786	0.9363239	0.9716532	0.9632127	0.9718555	0.9466749	0.72762
Phase-1 RCT-15	1.2613454	0.9491328	0.9274648	0.9567491	0.8306106	0.9375537	0.9305009	1.3858176	1.1912801	1.4050114	1.2931928	1.4245893	1.1770061	1.4662294
Insulin-like growth factor I	0.6625483	1.0422248	1.1184182	0.884918	0.5654103	0.759491	0.7177323	0.8007879	0.9478875	0.6959159	0.8381752	1.0281444	0.740289	
Sodium/bile acid cotransporter	0.8068859	1.1025871	1.1035293	0.8227795	0.4676899	0.6407399	0.8296302	0.4314776	0.8648001	0.5301635	0.6905081	0.3612221	0.4591997	0.6875928
Organic cation transporter 3	1.1304556	1.0360454	1.1455786	1.2880225	1.1503327	1.4467344	1.198242	1.1565741	0.8640005	1.001734	1.2119286	1.1061155	0.9716666	0.7685725
Gadd153	1.0613161	0.9964648	1.013138	1.180893	1.1506338	1.1875831	1.0255171	1.2919445	1.1944822	1.1410551	1.4994215	1.1878908	1.3058116	1.2084008
Phase-1 RCT-109	0.9617487	1.4736047	1.3388493	1.6066182	1.1075263	1.5332296	1.357719	1.1631279	0.9125801	1.0456504	1.184129	1.0023848	1.0925773	0.8204044
Phase-1 RCT-88	0.9411321	1.0049641	1.0259602	1	0.9749526	1.0264654	0.9517785	1.5889429	0.9663833	0.8911583	0.8731609	1.1609735	1.240619	1.1831139
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.1008974	1.4837803	1.2331097	1.4842804	1.1282028	1.2934452	1.485269	1.1554693	0.9008179	0.978698	1.2124301	1.0773935	1.0196687	0.9686307
Glucose-regulated protein 78	1.2428181	1.4143939	1.4555316	1.7375795	1.5070225	2.3957715	1.520934	1.4283928	0.7986428	1.2771454	1.0092942	1.2631692	1.2631692	0.8820146
Ribosomal protein L13A	0.9037868	2.1051333	1.2514815	1.673267	1.3718643	1.7124127	1.5668841	1.2663463	1.1912576	1.2523277	1.1856581	1.3362536	1.2243726	0.772004
Monocyte chemoattractant protein receptor (CCR2)	1.0114678	0.8305488	1.102918	1.2375101	1.1789569	1.3779206	1.2171417	1.1622503	0.9122417	1.0536101	1.2337868	1.118325	1.0059485	0.8711044
Fas antigen	1.1171663	1.1554203	1.3964238	1.6514571	1.0852808	1.3967149	1.1093762	1.0405078	1.209605	1.3190597	1.0495736	1.2463725	0.8307147	
Calpain I heavy chain	1.0571114	0.7388207	0.8074206	0.933503	1.05044	1.1588517	0.9942155	1.1537789	1.1704319	1.3028935	1.5996423	1.181826	1.1222621	1.208356
Uncoupling protein 2	0.857944	1.0927417	0.9452921	1.0785184	1.1168226	1.0573944	1.0679501	1.3977586	0.9337968	1.1758285	1.2180758	1.372554	1.2601072	

Phase-1 RCT-168	1.0486772	1.0541917	1.2293272	1.2926707	1.0122851	1.2914813	1.0922012	0.9313901	1.0215636	0.9069039	0.7707748	0.9123206	0.8938018	0.8798043
Phase-1 RCT-154	1.0315523	0.8123731	0.9002547	0.9411916	0.9232389	0.9931874	1.0141993	1.1175152	1.0891851	1.0385841	1.0488214	1.0267228	0.9850259	0.9850259
Superoxide dismutase Mn	1.0026956	1.7931311	1.3136995	1.4579132	1.4575801	2.0912316	1.9115899	1.3760265	1.1935889	1.2892783	1.5199355	1.2704139	1.2275697	1.1046427
Phase-1 RCT-214	0.9882354	1.1746662	1.2062724	1.1203108	0.9383328	1.0719989	1.2223859	1.0542968	0.9638431	1.0236752	0.916897	1.1251256	0.9553995	1.0360509
Phase-1 RCT-225	0.6388158	0.8663846	0.9776428	1.0474478	1.0535673	1.0791946	1.0791946	1.0897186	0.9627121	0.9441245	0.6502419	0.5730928	1.076926	1.076926
Phase-1 RCT-181	0.9887088	0.9058579	1.171667	1.1700705	1.0928146	1.0154092	1.0935737	1.1147672	0.9761971	0.9691011	0.9829647	1.0906028	1.1257753	1.0112641
Nucleoside diphosphate kinase beta														
Isotom	1.2793146	1.6095233	1.142993	1.4085983	1.1669791	1.5273639	1.5307045	1.0921172	0.862027	1.288198	1.3731439	1.1275012	1.0549165	1.0344825
Extracellular-signal-regulated kinase 1	0.7508411	0.8775373	1.0804611	0.6085772	0.4997078	0.327315	0.3236332	1.0713137	0.6937633	0.196978	0.1047352	0.150082	0.2109335	1.3114012
Ribosomal protein L6	1.1437004	1.2947508	1.0898371	1.21699	0.973102	1.3840312	1.1102005	1.864096	0.9601462	1.3303138	1.6720054	1.7611854	0.5106056	0.8197972
Aldehyde dehydrogenase, microsomal	0.9128318	1.1903493	1.296749	1.5529606	1.0317655	1.1258008	1.2268202	0.9280436	0.977849	1.0591354	0.8925377	1.0302721	1.001144	0.7448703
p53	0.9518125	1.0585759	1.1299703	1.131571	1.154535	1.1308938	1.0591621	0.9082669	0.8635985	0.9672058	1.0110146	0.9712527	0.9712527	0.9712527
Phase-1 RCT-239	0.9240445	0.7183955	0.7342554	0.8391464	0.9096711	0.8116496	0.7964694	1.2491886	1.3014317	1.5640558	1.8845156	1.7338325	1.5355488	1.2516789
Macrophage inflammatory protein-2 alpha														
IgE binding protein	0.9907531	1.0770301	0.8797814	0.9835936	1.2305254	1.1008483	1.3060907	0.8939349	0.9056923	0.8391192	0.9527214	0.9843906	0.7477584	0.9088844
Phase-1 RCT-205	0.9285592	0.7618336	0.774358	0.8297729	1.0019716	1.0302432	0.9625534	1.1119753	0.9968702	1.06081	1.141606	0.9625751	1.0185591	1.0185591
Melanoma-associated antigen ME491	0.9971099	0.8310527	0.9160821	0.9445239	1.0272211	1.1298479	0.9905042	1.0267532	1.0100111	1.0203888	1.0370837	0.9499991	1.0034962	1.0777103
Phase-1 RCT-242	1.0413418	0.8933014	0.8894287	1.0837982	0.9710496	1.1542349	1.0019293	0.867502	1.1649553	0.9642277	0.9439852	0.8628026	0.8657123	1.2606784
Endase alpha	0.9162872	0.820349	0.8142368	0.8087749	0.8829714	0.8545437	1.1116986	1.1538302	1.100549	1.3228401	1.3140354	1.2169121	1.1442951	1.1442951
Thymosin beta-10	1.9798956	1.5763352	1.3974018	1.5624995	2.196609	1.3272035	1.3155141	1.3559322	0.7556119	1.113777	1.0604688	0.9498641	0.89166	0.6110686
Colicin	0.9514072	1.4453231	1.1108308	1.275565	1.2182832	1.1645329	1.2355655	1.5210194	0.8367428	1.6898222	1.7339818	2.097716	1.8710811	0.7017548
Carbonyl reductase	1.002473	0.9056512	0.9571164	0.9255652	0.9808534	0.881362	0.9532288	1.022009	1.0038049	1.0600098	1.2480377	1.0275369	1.1886652	1.0489371
MAP kinase kinase	0.8911063	1.1302441	1.0801498	1.0635779	1.0474159	1.2201722	1.1015478	0.8850357	1.043164	1.0289703	1.1179563	0.8707532	0.8949223	0.9054016
Phase-1 RCT-162	1.0602555	0.9512007	1.0276768	1.1033471	0.8351822	1.2007734	1.1087223	1.010851	0.8486154	1.0985435	1.068097	0.8220152	0.9135545	0.9135545
Phase-1 RCT-72	1.0338881	0.6708951	0.7182395	0.7508048	1.0462437	0.9083128	0.880863	1.2194732	1.0864666	1.0833468	1.3614608	1.1461796	1.0630473	0.9275221
Ribosomal protein S6	1.086005	1.3408228	1.108977	1.189728	0.9787134	1.3653642	1.2883168	0.9544585	0.7927226	0.9010562	1.0480707	1.0179196	0.8002484	0.7593466
Proliferating cell nuclear antigen gene	0.8968966	0.9018503	0.8161073	0.8896762	1.0400723	0.9159782	0.9173994	1.1237994	0.8930566	1.0800398	1.059154	0.8665707	0.8456856	0.8456856
Phase-1 RCT-192	1.0831431	0.9545358	1.1163645	1.1802254	1.0971167	1.1932416	1.3586817	0.8336989	0.8207323	0.8912228	0.9132519	0.911441	0.8665707	0.8456856
IkB-a	1.246955	1.3135934	1.0406927	1.121793	0.7800329	1.0581249	1.0602478	1.2725547	0.8444652	1.2714325	1.331598	1.2245946	1.1809969	0.9714178
Endogenous retroviral sequence, 5' and 3' LTR	0.7676363	0.9419165	1.3551219	1.1728796	1.219649	1.439765	1.1936044	1.465529	0.895126	0.9100264	0.9278592	1.1088786	0.9358371	1.0346006
Phase-1 RCT-37	1.0846265	0.8333847	0.9969303	1.073692	0.9927762	1.241572	1.0828205	1.4140047	0.9580507	1.3021775	1.6177237	1.5932928	1.3942528	0.9242801
Matrix metalloproteinase-1	1.0797313	1.3689475	1.0922022	1.0937433	0.9765365	1.2051444	1.1698774	1.5199137	1.1679509	1.2021229	1.5901262	1.4906188	1.2735887	0.819165
Cylin G	1.1428753	0.927368	0.9439414	1.0660563	1.2003452	1.1318227	1.0697398	1.348115	1.2312993	1.1527978	1.892217	1.0820998	1.1879805	1.2959547
DNA polymerase beta	1.0695652	1.1777807	0.9750892	1.0071118	0.8116791	0.916705	1.0304117	1.0092962	0.8329693	0.94353	0.8656286	0.9207724	0.9001613	1.1393579
Phase-1 RCT-127	0.958279	0.7922245	1.0210559	0.9173834	1.1876384	1.1010038	0.9915028	0.9043407	0.8059779	0.8695816	0.6592069	0.8559969	0.6951018	0.9762267
Multidrug resistant protein-2	0.880839	1.3267599	0.9825292	0.986633	1.2161293	1.2592363	1.0002177	1.390414	1.367158	1.3981218	1.5249084	1.3481938	1.3526287	1.02338
Ribosomal protein S9	1.1062683	1.6887826	1.2279115	1.427323	1.1858401	1.3671156	1.7134383	1.1458455	0.9454555	1.0321845	1.2294197	1.3326836	1.3074819	1.014214
Phase-1 RCT-12	1.0891831	0.872658	0.9102572	1.0254031	0.8052335	0.8811795	0.8661383	1.1748898	0.8683463	1.2869905	1.5661703	1.227762	1.2668415	1.1713469
Beta-tubulin, class I	1.1518395	1.095425	0.89262	0.9807819	0.5908903	0.7195884	0.7875911	1.0709851	0.7036567	1.5008382	1.5112339	1.2313545	1.233854	1.2451168
Argininosuccinate lyase	1.3661621	1.2406984	1.1377484	1.1941922	0.6948887	1.0418337	0.9429498	1.0436952	1.2862256	1.1258215	1.0457597	0.9892073	0.8361496	1.0734551
Elongation factor-1 alpha	1.0907389	1.4308841	0.9600195	1.0944589	0.8962008	0.93791	0.950287	1.1787244	1.0493758	1.0925428	1.0840823	1.2337308	1.0939821	1.0740578
Phase-1 RCT-65	1.0722129	0.6376712	0.7104994	0.8499142	1.0362318	1.0267856	0.8832764	1.0665163	1.0354108	1.2874337	1.7527561	0.9855029	1.1599869	0.9992308
Macrophage inflammatory protein-1 alpha														
c-Hras	1.0156627	0.975791	0.8238509	0.7989764	1.0936152	1.0133909	1.0983943	1.1137325	1.1383218	1.1028648	1.2039791	1.1821076	1.1495212	0.9966882
Multidrug resistant protein-1	1.089424	1.2574104	1.2048957	1.4656397	1.3118485	1.379895	1.4539462	0.7347537	0.9424608	0.8674112	0.804673	0.7479881	0.7030091	0.8350114
T-cell cyclophilin	1.0741376	1.2705863	1.0031952	1.0170288	0.8173524	0.8995277	0.9672994	1.0172763	0.7783455	0.9399415	0.959794	0.9604566	0.920778	1.0542505
Phase-1 RCT-185	0.7901897	1.147802	0.9235125	0.9084899	0.7178328	0.705811	0.8859007	0.8912953	0.7292727	0.7862225	0.7576036	0.6823177	1.3714492	1.3714492
25-OX	0.8720123	1.4570947	1.2995418	1.2592057	1.145478	1.0147473	1.1503934	0.7847038	0.6226114	0.7462102	0.7827414	0.6937497	0.6937497	0.6937497
Ref-1	1.0787234	0.9177154	0.9881394	0.890492	0.8802657	1.1609738	1.0823809	0.8625024	0.824925	0.7278568	0.9420822	0.6306458	0.7546803	0.7516345
Apolipoprotein CIII	0.8393125	0.9760724	1.1009572	1.054559	1.0141109	0.8587704	1.0457902	1.0097816	1.0441012	0.9882857	0.8132122	0.9867947	0.9898838	1.2155281

NADPH quinone oxidoreductase-1 (DT-diaphorase) Pyruvate kinase, muscle	1.0603205	1.120312	0.9754635	0.8840929	0.9178307	1.2760704	1.4034709	0.799555	0.7174253	0.6483225	0.8673986	0.5332554	0.6387594	0.7009314
	0.9320664	0.7197864	0.7680998	0.902185	1.0471895	1.2491783	0.9838086	1.2887633	0.9414723	1.2636769	1.2105726	1.2433457	1.1593304	1.0172545
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 hr: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Table 35. Expression Data for 24 Hour													
Timepoint (1)													
Compound-Dose (2)													
Animal Number (3)													
Liver Toxicity Necrosis Classification (4)													
Gene Name (5)													
Phase-1 RCT-78													
Gamma-actin, cytoplasmic	1.0547765	1.0562277	1.1915442	1.0790083	1.0586604	0.9839231	1.0131279	1.3046751	1.0914379	1.0743146	1.145496	0.9977803	0.985499
Matrin F/G	1.1522331	0.9045947	0.9753384	0.9208074	0.9002559	0.9334328	0.7112135	0.8403273	0.8403273	0.7684967	0.7684967	1	0.8386725
Zinc finger protein	0.7401431	0.8223853	0.9304595	0.9191722	0.7384959	0.9549521	1.0151736	0.9256644	0.9256644	1.0153781	1.2375226	1.1844898	1.2189197
Cathelin L, sequence 2	0.9181842	0.9336498	0.8931084	1.0458792	0.9855228	1.0396991	0.9658368	0.5982894	0.6060821	0.8635595	0.9211642	0.6985992	0.8000989
Gadd45	0.812287	0.6718458	0.9307687	0.9021190	0.8307942	1.0108753	1.0715073	1.3114142	1.4819858	1.8974347	0.7350942	1.9309031	0.8816093
Phase-1 RCT-144	1.0341849	1.0453503	0.9287809	0.9086292	0.8121401	1.2922177	1.4613928	1.2178854	0.8731595	1.1780946	1.032838	1.162525	0.9564042
Phase-1 RCT-145	1.1018745	1.1295192	1.2953106	1.1583499	1.1587555	1.124259	1.0434958	0.8756742	0.7410977	0.7993088	0.8380978	0.9137664	0.8054081
Phase-1 RCT-50	1.1603525	1.1301882	1.0904553	1.2827536	1.1539549	1.5766801	1.1469966	0.9260749	0.8437133	0.9145744	1.0656359	0.6419889	0.7902377
Phase-1 RCT-92	1.0833458	1.3020625	1.0947018	1.1134381	1.1388752	0.8861762	0.947103	0.5152757	0.9589465	0.6690646	0.7385512	0.9553111	0.6607592
Phase-1 RCT-89	1.1045401	0.9797983	0.9841723	0.7470164	0.9490318	0.7982785	0.7303543	1.8560541	0.9038004	1.4075742	1.1654725	1.1074867	1.3672794
Phase-1 RCT-217	0.8428074	0.7928727	0.9959372	0.8756568	0.8625919	0.6073347	1.9920813	1.5473448	2.3659704	1.8974288	1.2814406	1.8845782	1.2136217
Phase-1 RCT-203	0.9862049	1.0677679	1.1530576	1.2453339	1.0763985	1.2606515	1.101815	0.6233349	0.7283151	0.7665073	0.8457143	0.7433449	0.5301009
Dynamin-1 (D100)	0.8956808	0.7801103	0.9161274	0.7210956	0.8577027	0.7402272	0.8494076	1.925274	1.4394305	1.7830283	1.1512485	1.1577648	1.4523342
Insulin-like growth factor binding protein 1	0.6609483	0.6940662	0.6237623	0.7076913	0.655158	1.3940378	0.9862287	0.9195007	1.0170423	1.3417126	1.4067464	0.8920356	1.0410556
L-glutono-gamma-lactone oxidase	1.2316203	1.3397641	0.921728	1.2478249	1.0314366	0.6313162	0.5920211	1.3838898	0.7312946	1.2817328	1.0356843	1.5578628	0.8594613
Ornithine decarboxylase	1.9346885	2.5246766	1.7744201	2.3055675	2.5671808	0.7645058	0.9960042	0.2706858	0.3253885	0.3865665	0.2597117	0.483393	0.3305529
PAR interacting protein	1.0712777	1.0350841	1.2832757	1.3033093	1.574073	1.3560558	1.0663247	0.8671227	0.7201573	0.808334	0.9441951	1.0625031	0.9904169
Phase-1 RCT-128	0.9115391	0.6487989	0.9075577	0.7279741	0.8744426	0.6109814	0.8288952	2.9452615	1.6105057	3.2078798	1.411337	1.3571572	1.7300712
Phase-1 RCT-180	1.1608938	1.1655883	0.8552088	1.0576811	1.0319508	0.9423754	0.9808528	0.8292764	0.697848	1.0579005	1.3260691	1.2723324	1.1617475
Phase-1 RCT-182	1.029786	0.8145503	1.1357232	0.96543	0.9188481	0.8521695	0.8095916	1.0213171	1.1863085	1.0733824	1.0666082	1.0488182	1.2729136
Phase-1 RCT-203	0.931024	1.0766408	0.7467784	0.9438867	1.077221	3.9848044	1.1706065	0.7424223	0.7127469	0.6874069	0.8182303	0.7082806	0.6478244
Phase-1 RCT-256	0.9674627	1.0657272	0.9338867	0.9499937	1.0747455	1.5059562	1.0942042	0.6974828	0.7156252	0.7328844	0.8738437	0.9090005	0.8904017
Phase-1 RCT-258	0.9436733	0.9757629	0.8688036	1.067213	1.047125	1.0262396	1.0742414	0.8078812	1.4844442	2.2053957	1.5591078	1.5562178	1.1051437
Phase-1 RCT-264	0.9904245	0.7112802	1.4137381	1.2208863	1.281418	0.9826869	0.7432373	2.6556458	1.8828884	3.0006933	1.4906067	1.7173597	1.8781348
Phase-1 RCT-271	1.262436	1.3997965	0.9441074	1.1792747	1.0024462	0.7188248	0.880351	1.5033168	0.6939941	0.948788	0.7513359	0.7663074	0.7684612
Phase-1 RCT-288	0.7463127	0.6016459	0.7746908	0.8344995	0.9327866	0.6963155	0.651479	0.7448587	0.7213675	0.7222557	1.625849	0.6033554	0.7408314
Phase-1 RCT-38	0.9016998	0.8141939	0.9931758	0.9538496	0.9665953	0.6593508	0.7590686	2.2436502	1.4070039	2.276939	1.5520036	1.6892585	1.6098739
Phase-1 RCT-39	0.9264361	0.9241397	0.8268709	1.0536855	1.0622908	1.2347424	0.9394559	0.7414501	1.0816814	0.7358919	1.165079	0.7260877	0.882489
Phase-1 RCT-88	1.0981326	1.2007613	1.1402569	1.221857	1.1311085	0.9997844	1.2384086	0.9859434	0.9328336	0.8761741	0.9827848	1.1401714	0.9925258
Phase-1 RCT-33	0.8122888	0.9065056	1.1020057	0.9430744	0.9033095	1.0724941	0.7712337	1.849916	0.8726726	1.673844	1.1651813	1.1581932	1.4595691
Phase-1 RCT-36	0.9391925	1.0675279	1.0932105	0.9253519	0.9847777	0.9433872	0.7948577	1.1959951	0.7590257	1.1177846	0.9616723	0.9717681	1.1412898
17-beta hydroxysteroid dehydrogenase, type 2	0.460961	0.8105518	0.4312654	0.8859535	0.7838344	5.6818852	1.8134654	0.7904897	0.910664	1.2713588	0.782394	0.5943241	0.9492806
Sensescence marker protein-30	1.1221726	0.6569196	1.1026238	1.0750107	0.907983	0.6753206	1.0680922	1.7453419	1.9687128	2.0194668	1.7971244	1.4273145	1.0728071
Ribosomal protein S17	0.9109137	0.7271888	1.2865889	1.2448672	1.1970538	1.2216486	1.2405282	1.594211	2.1265278	2.0721617	1.7979212	2.6001446	2.111169
Phase-1 RCT-83	0.8350925	0.7689297	0.9791799	0.8645746	0.7540507	0.6750171	0.8116761	1.0840935	1.1098941	1.5134729	1.3522861	0.7312803	1.0250878
Phase-1 RCT-49	0.9788159	1.0498899	1.1463145	1.0586997	1.0638055	1.0551763	0.9813357	1.1228011	0.7007859	0.9668293	1.3522861	0.7312803	0.8772811
Phase-1 RCT-48	1.2894795	1.010865	1.5748872	1.8059895	1.4936033	0.6825086	1.0477209	0.8646556	0.6102698	0.8151956	0.75351	1.3863585	1.0363151
Phase-1 RCT-40	1.0007905	1.129285	1.329285	1.0762098	0.7632098	0.8540155	1.156971	1.6735761	2.430272	1.5040301	1.1773634	1.3675375	0.9525221
Phase-1 RCT-296	0.906784	0.6310231	1.0353827	1.0394692	1.0207493	0.9363716	0.3284354	1.3541422	1.2882005	1.6198604	0.6086316	0.7375369	0.8771037
Phase-1 RCT-285	0.9548269	0.8963004	1.0214832	1.0470282	0.9984825	1.1534892	1.0023037	0.9455403	1.0771772	1.0347421	1.2947134	1.1415977	0.8351424
Phase-1 RCT-291	1.0995327	1.0076678	1.1618645	1.1672877	1.0681014	0.6345833	0.8505756	0.7963607	0.8176221	0.7504244	0.8135296	0.8459677	0.9363224
Phase-1 RCT-270	0.9806274	0.8760811	1.1227957	0.8906972	1.0871042	0.6331319	0.7512263	2.1867974	1.2634829	1.6172161	1.3820782	1.4018935	1.3082228
Phase-1 RCT-241	0.9654019	1.0652418	0.802184	0.9622636	1.0498322	1.071862	1.3263177	0.802139	0.866324	0.7138963	1.8868235	0.7797346	0.930402

Phase-1 RCT-181	1.3596039	1.8359603	1.1009502	1.1807156	0.8712906	0.8123763	0.730506	0.4825102	0.4207209	0.5093713	0.5588714	0.7768824	0.6229851	0.916745
Phase-1 RCT-189	1.0649163	1.0044433	0.9457858	0.9228458	0.8779664	0.8531704	0.8393594	1.0014902	1.3148415	0.9626251	1.5024235	1.5402289	2.243597	1.4387621
Phase-1 RCT-179	0.8935874	0.7074423	0.8273484	0.8279275	0.8531704	0.8393594	1.0014902	1.3148415	0.9626251	1.5024235	1.5402289	2.243597	1.4387621	0.8808916
Phase-1 RCT-152	0.782513	0.6566529	0.8827272	0.7603868	0.7128391	1.4389966	1.3007702	1.6828704	2.2160928	2.3116677	2.0914745	2.6181242	0.9369655	0.9369655
Phase-1 RCT-123	1.0472156	1.2295187	1.0866454	0.9923956	1.025285	0.9031745	0.9819815	0.8516517	1.0585556	0.7388913	0.9148728	1.0545751	1.0026851	0.8829836
Paraoxonase 1	0.8334145	0.5565577	0.7970424	0.7382121	0.7014539	0.9174501	0.9893499	1.2863499	1.869949	1.5313503	1.0477088	1.1457033	1.5317208	0.1980671
Organic anion transporter 3	1.1004206	1.070036	1.0221021	1.0430906	1.0006036	1.033883	0.9407284	0.94003	1.2312872	0.6946014	0.8614157	0.8557856	0.5874847	0.7948477
N-hydroxy-2-acetylaminofluorene	0.7522546	0.6986667	0.898888	0.8405594	0.7602168	0.7659994	0.9505844	1.6756074	1.8997293	2.1344118	1.6493942	0.9744161	1.3544061	0.8737929
sulfolipase (ST1C1)	0.8543854	0.9904251	0.8444621	0.8628582	0.8413037	1.1281446	1.2119812	0.9654173	0.88465	1.0476137	0.8295873	0.8244376	0.8180027	1.017569
Integrin-like growth factor binding protein 3	0.8159961	0.6228863	0.8316076	0.7562817	0.7814363	0.9809938	1.054671	2.0987406	2.2558253	2.4470077	1.468472	1.7170621	1.4289383	1.3493485
ID-1	1.1715382	1.250535	0.9216662	0.9252418	1.0086107	1.1517502	1.5514625	0.8616903	0.7703483	0.8531873	0.7735415	0.8118459	0.8086817	1.0130625
Hepatic lipase	1.0688205	0.8213968	0.8180063	0.7073626	0.7810552	0.838737	1.1117998	1.1511606	0.9213136	0.9525996	0.8697828	0.8481318	1.017036	1.2350609
Heme oxygenase	1.2185714	0.9342359	0.8468934	1.0408093	0.8662071	1.084681	1.1228601	1.240772	1.6822037	1.4343598	1.8969213	2.1436775	2.6557374	0.8350033
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.8051648	0.7997835	0.9942466	0.8984562	0.7952143	0.7094553	0.8872644	0.9943014	1.2891829	1.2500878	1.3061357	0.745481	0.8764174	0.8624002
Epidermal growth factor	0.7609389	0.5475023	0.7899418	0.7768145	0.634099	1.035831	2.1082518	1.4825957	1.7738048	1.5188228	1.3958074	1.407102	1.4905548	1.236545
c-myc	1.174978	1.5797335	1.188148	1.4352084	1.3868939	0.8767461	1.0438954	1.197417	0.878868	0.7479487	0.9427556	0.934615	0.8365381	0.791741
Carbonic anhydrase III	1.3518391	0.8745595	2.609636	1.415605	1.0283989	0.6678135	0.3842335	1.0248159	0.4751967	1.0399283	0.787604	0.4992937	0.3743774	0.9381163
Beta-actin	1.0174677	0.6884565	1.1876681	0.9515724	0.8313752	1.0399488	1.1563126	0.7416167	0.4646646	0.5986167	0.649104	0.9104236	0.4993384	0.7375403
Box (alpha)	1.2574457	1.7794076	1.3011365	1.5375423	1.8359781	1.2937338	1.4070051	0.7030144	0.6891272	0.7565884	0.8421159	0.884095	0.7174888	0.9800239
Alpha 1 - inhibitor III	1.1390623	0.8318231	1.4007108	0.8227861	1.1251445	0.9734188	0.776804	1.464841	1.8750518	1.4658511	0.8372556	0.747708	1.4316047	1.1347969
60S ribosomal protein L6	0.8656142	0.7029315	0.8468934	0.9274637	0.9005132	1.4460454	1.5024988	1.2947186	0.8096044	1.3291594	1.3582761	1.3897492	1.3923753	0.9137771
Phase-1 RCT-117	1.1962621	1.1519722	0.7967146	1.4488807	1.3580258	0.4775811	1.1952397	1.8071829	1.6583085	1.8017474	1.9038724	1.2675313	2.2720842	0.9787938
Phase-1 RCT-102	0.978449	0.5812911	0.7928087	0.9841508	0.8825305	0.3675584	0.4223357	1.6718912	0.5363799	1.3746179	0.5467025	0.4971568	0.6516238	1.1315098
3-hydroxyisobutyrate dehydrogenase	1.0291436	0.8002419	1.094336	1.0302578	0.8928768	0.8606284	0.85950839	1.6447231	1.3280048	1.7234519	1.7089126	1.5597272	1.696042	1.0634521
ATPase inhibitor (rat mitochondrial F1 protein)	0.7100032	0.5270888	0.6933163	0.7452415	0.5762413	0.6924334	1.2469176	2.8324342	1.2672375	3.0221741	2.216873	1.756264	2.9005635	1.1742792
Alpha-2-macroglobulin	1.0731332	0.8742707	1.2157528	0.8887965	0.8876357	1.2687946	1.0870404	3.4746912	0.9778748	2.6499164	1.9667973	5.068673	5.4624777	1.8018046
Phase-1 RCT-137	1.0180394	0.7794142	0.7325105	0.9627718	0.8088268	0.4555533	1.1713247	2.3404475	1.1240724	2.1407337	1.6197182	2.1235428	2.3856025	1.2880542
Phase-1 RCT-252	0.8650051	0.7400993	0.7050729	0.7376211	0.6951842	0.676213	1.3956954	1.1276152	1.4335128	0.9871198	1.4793962	1.180509	1.107401	0.7888134
Phase-1 RCT-65	1.0977235	1.5055437	1.0402446	1.179867	1.100142	0.8343763	0.8612572	0.7017964	0.9086603	0.7274052	0.8288731	0.8946289	0.7959234	1.0084834
Liver fatty acid binding protein	0.7581012	0.5145845	0.6751255	0.7179415	0.8231087	1.3176926	0.8149537	2.249362	2.498283	3.6212106	1.1980082	1.1234883	1.5622343	1.0084834
Carbamyl phosphate synthetase I	0.9317059	0.7818984	0.7565774	0.7504682	0.6796513	0.6075342	0.5835581	1.494917	1.590773	1.5159031	0.9578381	1.7046676	1.0930035	1.0471283
c-Jun	1.1144154	1.4459878	1.0828898	1.2425681	1.3008494	1.9220823	1.1018791	0.7979035	1.1496426	0.9088701	0.9409447	0.9890342	0.8164377	0.9429843
Transferrin	0.8081868	0.5503009	0.7018675	0.5688645	0.6222885	0.8652858	0.6974813	1.9787489	2.320032	3.150734	1.7089721	1.9292776	2.1254022	1.1740705
Aflatoxin B1 aldehyde reductase	0.6228216	0.6898986	0.6870875	0.7558344	0.7290751	1.4548429	1.6431706	0.8823617	0.5924826	0.683098	0.8035737	0.6150676	0.7587878	1.2460879
Phase-1 RCT-15	1.3810982	1.4762883	1.9779473	1.6226133	1.6030686	1.0671823	0.9848131	0.8967305	0.8843715	1.0338205	0.9235788	0.9874468	0.847193	0.7859208
Insulin-like growth factor I	0.7474025	0.5604551	0.700061	0.7104682	0.6555817	0.8578609	1.0560609	2.061099	2.1596088	2.354777	1.4066072	1.7076546	1.4493039	1.352946
Sodium/bile acid cotransporter	0.8168652	0.6845965	0.9937608	0.9386273	0.7202144	0.7137379	0.9612464	2.9072728	1.2932681	2.9010882	1.2097394	0.9115224	1.4216633	1.0010197
Organic cation transporter 3	0.8287855	0.6814286	0.8090365	0.9275647	0.9031484	1.4971648	1.5990235	1.0185238	0.9649167	1.284659	1.336564	1.748929	1.3762009	0.9740508
Gadd153	1.1358725	1.3992534	1.098144	1.2021248	1.3694658	1.7199167	1.7340665	0.9038861	1.0574546	1.1207694	1.0782987	0.8757479	0.7575757	0.7680007
Phase-1 RCT-109	0.7132627	0.7022035	0.8300777	0.7935467	0.8878087	1.3828288	0.9789288	1.4948934	0.8285434	1.5731704	1.1724768	1.5357205	1.4407775	1.1182468
Phase-1 RCT-88	1.0365148	0.9962185	0.923942	0.6937807	0.9796232	0.892311	0.8506036	1.7924161	1.362853	1.5018328	1.3013394	1.4841356	1.5591816	0.9094634
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.9377438	0.7288896	0.9808111	0.9980229	0.8553119	1.2042702	1.4067389	1.1297365	0.9944098	1.2780479	1.304638	1.819953	1.4897186	1.1103649
Glucose-regulated protein 78	0.7816344	0.5708965	0.790483	0.6849909	0.6186662	2.005804	2.0680456	2.2094237	2.1173525	2.4666666	4.4238434	1.7441188	2.5857375	1.0038023
Ribosomal protein L13A	1.0970287	0.7479778	0.7215453	0.769969	0.9818789	1.578077	1.0621145	1.6782147	1.0505928	2.543329	1.4769226	1.733376	1.5887842	1.1009448
Monocyte chemoattractant protein receptor (CCR2)	1.0445595	1.0098934	1.0158131	1.0046194	0.9576413	1.3135839	1.5175824	0.5571817	0.8096895	0.6004639	0.7635297	0.873992	0.9222661	0.795961
Fas antigen	0.9383163	0.8881792	0.9950752	0.9128254	0.8539911	1.3586603	1.3594425	1.2873343	0.865962	1.2765297	1.4816856	1.0371286	1.1640005	0.8435948
Calpain I heavy chain	1.2110449	1.5293131	1.2360163	1.5286632	1.3984225	0.7915841	0.976202	1.0192211	0.7671112	1.7155935	0.9239366	1.0519854	0.7994842	0.9003265
Uncoupling protein 2	0.735202	0.7342812	0.7488037	0.8199222	0.7870006	1.0277493	1.021247	0.7763109	0.8127323	0.9801469	0.8549287	1.1571794	0.9576427	1.0614493

Phase-1 RCT-168	1.0071242	1.0921726	1.2083452	1.0966936	1.075448	1.1102885	1.1008118	1.5757882	1.0826385	1.5104128	1.3677459	1.4286089	1.073896
Phase-1 RCT-154	1.0566666	0.9976771	1.2471428	1.2551316	1.1588812	1.8150673	1.200509	1.190175	0.7863556	1.0114676	0.7007902	1.1195285	0.9322451
Superoxide dismutase Mn	1.1062655	1.0694853	1.0178945	1.0572224	1.172151	1.3473337	1.2469805	1.9742026	1.7422863	1.9135505	0.9838803	2.8762848	1.6509039
Phase-1 RCT-214	1.1526017	1.0368013	1.3128741	1.2260255	1.1053119	0.6174184	1.0707477	0.6164565	0.8168197	0.6630925	0.8484807	1.0456159	0.897943
Phase-1 RCT-225	0.8331614	0.9856274	0.9991004	0.8053892	1.8982919	0.4282121	0.6079226	1.3864579	1.2612184	0.9234554	1.7201121	0.9636285	0.9082288
Phase-1 RCT-181	0.9768243	1.1123165	0.8697043	0.8697043	1.0504079	0.9068765	0.7300206	0.91705	0.82063	0.8395435	0.8340051	1.0709483	1.0274212
Nucleoside diphosphate kinase beta	0.9856877	0.91412	1.2014649	1.2682381	1.1268659	0.9662601	1.3668898	1.1031327	1.0152477	1.0638169	0.9322887	1.3054496	1.090767
Isotom	1.4641335	0.9696219	2.0861804	1.4293	1.1450347	0.8768352	0.412362	0.6918522	0.6397311	0.8472724	1.7576605	0.4875581	0.9018081
Extracellular-signal-regulated kinase 1	0.869869	0.788359	1.0216589	0.9708834	1.048707	1.1881455	1.3287968	1.3860663	1.5033104	1.5669524	1.8075202	1.6546329	1.0202048
Ribosomal protein L6	0.876411	0.897054	1.0032759	0.9922893	1.020967	1.0349674	0.9636791	1.7618455	1.1200563	1.4895493	1.1792343	1.3343514	1.1736747
Aldehyde dehydrogenase, microsomal	0.9827584	0.9944749	0.9572091	0.9318745	1.0830653	1.303493	1.4104387	1.6058665	1.2048452	1.6012113	1.5470385	0.9102609	0.8623753
p53	1.2414868	1.8535638	1.1352313	1.6728554	1.5435367	0.7648112	0.5818324	0.7917985	0.7567933	0.7581568	0.6460097	0.8873342	0.711132
Phase-1 RCT-239	0.852841	0.9137954	1.0387785	0.948149	1.8733148	1.5255616	1.000918	1.076359	0.9786714	1.0720333	0.9714794	0.8045132	0.8480303
Macrophage inflammatory protein-2 alpha	0.8687242	0.9929011	1.0667452	1.0338424	1.0572431	0.9035317	1.1824845	1.2871934	1.0357251	1.7931908	1.2416072	1.3345616	0.9626111
IgE binding protein	1.1246315	1.2269077	1.2323409	1.1318395	1.0743102	0.9679185	0.9607557	1.3283571	0.7073438	0.9757852	1.4601974	1.2633361	1.5438241
Phase-1 RCT-205	1.1498673	1.0736861	1.1664151	1.1801275	1.1045839	0.9681353	0.8598748	1.1064799	0.8674896	1.0899804	1.2789402	1.3931452	1.1017052
Melanoma-associated antigen ME491	1.1995293	1.5524218	1.2468494	1.3147545	1.3025866	1.4110525	0.9493349	0.6896642	0.5412219	0.5692167	0.8689857	0.7949904	0.8210483
Phase-1 RCT-242	0.6331559	0.6330895	0.9461446	0.9578369	0.928706	1.542316	0.9133128	1.0887572	1.0477728	2.1281877	2.2828853	0.4098804	1.3314631
Enolase alpha	0.7237414	0.6470189	0.735872	0.8141183	0.911215	1.1332175	1.4515698	1.0113668	1.5923477	1.4246024	1.4631331	1.5367264	1.2220308
Thymosin beta-10	1.3694327	1.030254	1.4801254	1.261177	1.1886853	1.1986536	1.059257	1.3460637	1.2514149	1.5662527	0.7586643	1.3986899	1.2835791
Collin	1.0584143	1.2161262	0.8222543	1.178946	1.2975112	1.0649179	1.188021	0.8992121	0.9555441	0.8825488	0.7820463	0.7315698	0.4947433
Carbonyl reductase	0.9912357	0.95828	0.9658388	0.9016227	0.9070272	1.1268094	1.2785695	0.8533267	0.8319414	0.9445063	0.9368709	0.8687771	1.0518181
MAP kinase kinase	0.939432	0.9068268	1.0321127	0.9736348	0.8908579	1.1634984	1.3561025	1.5889726	1.5252761	1.4797984	1.8398616	1.6578428	1.0518181
Phase-1 RCT-162	1.0479257	1.2596406	0.850836	1.0079315	0.868638	0.8830122	0.8349484	1.2055798	0.7713375	0.880288	0.8249179	0.8976481	0.7828592
Phase-1 RCT-72	0.8184723	0.6402165	0.9849365	0.9056048	0.8087254	1.3456981	1.2631326	2.0714286	2.8340156	0.862817	3.1145298	2.6691177	1.0508089
Ribosomal protein S8	1.0946403	1.3979219	0.92245	0.971824	0.86657	0.9470089	1.961844	1.2404206	1.1262001	1.040335	0.885608	0.966159	0.8738765
Proliferating cell nuclear antigen gene	0.9036466	0.8135634	1.0137818	0.973817	0.9688408	1.0884675	0.9854362	0.8644448	0.778972	0.9775494	0.9306437	1.0534642	1.0184441
Phase-1 RCT-192	0.9153882	0.8847584	1.0159202	1.0271039	1.1171277	1.197552	1.6017346	0.784856	0.5735336	0.8536878	0.8149751	1.1345508	0.9618451
IKB-a	0.771543	0.7726386	0.8426448	0.9285884	0.7067065	0.7301481	0.6492282	1.0465344	1.1397475	0.8159402	1.0911741	0.8897357	0.7465988
Endogenous retroviral sequence, 5' and 3' LTR	0.9426175	0.9016812	0.9902634	0.9999999	0.8568274	1.0449872	1.0957305	1.1709652	1.1470929	1.213584	1.2654525	1.3410114	1.1934087
Phase-1 RCT-37	0.8261954	0.6605798	0.8004344	0.7707496	0.816663	1.204917	1.0540271	0.9482892	0.5328655	1.1260147	1.0469211	1.4483149	1.2298436
Matrix metalloproteinase-1	0.8577724	1.3878073	1.1336772	0.9629484	0.8362814	2.789957	2.3397868	0.7886401	0.8259432	0.7451659	0.8877055	0.7960341	0.8586254
Cyclin G	0.983084	0.8727085	0.9798261	0.9944674	0.8810854	1.0028085	1.3320081	1.2574316	1.5501531	1.2522866	1.022403	1.3847826	0.984988
DNA polymerase beta	1.0685972	1.1529505	0.6706199	1.4238687	1.3356714	1.0225154	1.1181643	1.2215488	1.2873993	1.2249299	1.784363	1.0235173	1.478652
Phase-1 RCT-127	1.1054983	1.2153552	0.9508979	1.0054368	1.0886405	3.223368	1.3437301	1.2437081	1.348887	1.2123268	1.0143793	1.169789	0.8012836
Multidrug resistant protein-2	0.9672169	0.7912244	1.027324	1.0239946	1.0765357	1.2814537	1.5171708	1.2018086	1.2504216	1.2981393	1.3898	2.142252	1.43242
Phase-1 RCT-127	1.3823446	1.4526114	1.4174402	1.7869742	1.4053019	0.8186056	0.8884425	0.7140949	0.807696	0.6222308	0.8504101	0.5237248	0.9762024
Ribosomal protein S9	1.9649289	1.9077431	1.3803464	1.6078476	1.3034828	0.7847855	0.8542048	0.6582632	0.7141493	0.8502041	0.5189793	1.0424433	0.6962566
Beta-tubulin, class I	0.9627877	0.9866256	1.1804318	1.1039255	1.1228687	1.2225375	0.7747435	1.0591232	1.0438608	1.4781908	1.0910281	1.4374999	1.485635
Argininosuccinate lyase	1.0824808	0.8283921	0.97413	1.0194639	1.1455259	1.1117985	1.5073308	1.2662908	1.2598937	1.5798334	1.5498923	2.0097637	1.693982
Elongation factor-1 alpha	1.1281741	1.3469962	1.0710821	0.9416949	0.9636494	1.029152	0.7899565	0.661125	0.9924877	0.5247591	0.7184569	0.6521698	0.6378601
Phase-1 RCT-55	1.1149024	1.3926147	0.8762591	1.0843323	1.4332342	1.1387316	1.541908	0.8319878	0.5137824	0.671406	0.8606426	0.6907659	0.827444
Macrophage inflammatory protein-1 alpha	0.7232571	0.7521555	1.0742891	1.0953562	1.0156398	1.0476233	1.6221459	0.8271519	0.7747221	1.4032755	1.4023541	1.2208491	0.9277852
c-Hras	1.3681731	1.4882226	1.603519	1.5293337	1.7581807	2.2437754	3.308301	0.96301	0.9441162	1.1732447	1.0608569	1.2163931	1.0536633
Phase-1 RCT-154	0.921366	0.7674711	0.89238024	0.89238024	0.89238024	0.89238024	0.89238024	0.89238024	0.89238024	0.89238024	0.89238024	0.89238024	0.89238024
T-cell cytolysin	1.101825	0.806983	1.1570312	1.1268035	1.0156815	0.7479127	0.9747129	0.9308224	1.0092494	0.8517721	1.090487	1.2458767	1.120536
Phase-1 RCT-185	0.6784277	0.608959	0.6903244	0.7761578	0.7831562	1.164824	1.4040428	2.0025584	0.9442398	1.8850203	1.664301	1.4410014	1.00365
25-DX	0.8653358	0.8786749	1.146987	1.068769	1.0085884	0.7817952	1.2545661	1.2545661	1.2545661	1.2545661	1.2545661	1.2545661	1.2545661
Ref-1	1.0541718	1.034665	1.1327796	1.2287922	1.0853468	1.3784631	1.386772	0.9925887	1.113581	0.7022407	0.7688034	0.9287074	1.3859916
Apolipoprotein CIII													

NADPH quinone oxidoreductase-1 (DT-diaphorase)	0.7737947	0.7987621	1.297991	1.0939999	0.9122914	0.7271929	1.3689698	2.2400634	1.2531289	2.3080895	0.8387501	0.8309439	1.0338238	1.0920204
Pyruvate kinase, muscle	1.2189789	1.7559134	0.8935557	0.8991864	0.5337774	0.6189324	1.0324525	0.761744	1.1551427	1.0597123	1.0749912	1.1219273	1.0962288	0.847417
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Table 35. Expression Data for 24 Hour		Timepoint (1)															
Compound-Dose (2)	Animal Number (3)	EST 0.1	EST 0.4	EST 0.4	EST 0.4	ETH 2500	ETH 2500	GAN 50	GAN 50	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200	GEN 38
Liver Toxicity Necrosis Classification (4)		1425	1426	1434	1435	1436	134	135	2444	2445	2454	2455	2456	2456	2456	2456	224
Gene Name (5)		no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Phase-1 RCT-78		1.0304314	1.1373146	0.9370616	1.0395566	1.0391445	0.9164214	0.8734835	0.9570839	0.9401236	0.9960887	1.0188874	0.8192461	0.9340264	0.9340264	1.0347112	
Gamma-actin, cytoplasmic		1.2762616	0.9196373	1.1871346	1.2651716	1.0286912	0.9200018	0.9307378	0.9078299	1.0579581	1.0266208	0.7731414	0.8582206	0.9282473	0.9282473	1.0248627	
Matrix F/G		1.2997053	1.1500662	0.9688852	0.9548653	0.9332527	0.8335666	0.9347967	0.9491649	1.0167727	1.0471661	1.0407776	1.0547374	1.0642241	1.0642241	1.1445736	
Zinc finger protein		1.2370325	0.9865538	0.5840035	0.508187	0.5419287	0.9035364	0.8744882	0.972632	0.9844617	1.0190402	0.9874076	1.036683	1.0040224	1.0040224	0.9904625	
Cathepsin L, sequence 2		1.2463498	1.2331133	1.1859974	1.1856833	1.4139824	0.8378182	0.8895865	1.1408584	1.2868418	1.2868418	1.2868418	1.2868418	1.2868418	1.2868418	1.2868418	
Gadd45		0.7607668	0.8417025	0.8753212	0.9899673	0.8774846	1.6427606	1.4569082	1.2860966	0.9264118	1.1269455	0.9089785	1.2027047	1.3163323	1.3163323	0.8551437	
Phase-1 RCT-144		0.8437126	0.8762918	0.9689837	0.9790236	1.0122873	1.0814442	1.1252271	1.1682708	0.9925341	0.9101061	0.8860956	0.8983355	0.8538638	0.8538638	0.9841827	
Phase-1 RCT-145		0.8101653	0.82087	0.8150347	0.7197604	0.6864749	1.0178725	1.1509957	1.0647606	1.0129568	1.0139755	1.0128912	0.8953479	0.9900969	0.9900969	0.9683431	
Phase-1 RCT-50		0.6195437	0.853488	0.7776847	0.5725228	0.7050141	1.0673821	1.1265911	1.0690888	1.0167006	0.9806898	0.9919552	0.9691457	0.9564817	0.9564817	0.9269477	
Phase-1 RCT-92		1.0727197	1.1371187	1.1105787	1.5818233	1.3493189	0.7063197	0.7300615	0.5882787	1.1623333	0.9736474	0.9912567	1.1284927	0.9698719	0.9698719	1.0850847	
Phase-1 RCT-89		1.3255758	1.4303848	1.1542516	1.3531849	1.2975395	0.8990558	0.8448901	0.8618751	1.0319623	0.9834521	0.9320058	1.0744749	0.9375337	0.9375337	1.2107469	
14-3-3 zeta		0.7597263	0.7670657	0.6605424	0.9036639	0.6083623	1.236708	1.495327	1.1589068	0.979403	0.9817888	1.086767	0.9546699	0.976211	0.976211	1.2081018	
Dynamin-1 (D100)		1.1622748	1.1727291	1.1327395	1.2956442	1.2830012	1.052875	0.9121175	0.8014668	0.9414439	0.9981578	1.0574175	1.0129248	0.9600783	0.9600783	0.9269477	
Insulin-like growth factor binding protein 1		1.78681	1.0955883	1.0447339	1.0389254	0.9889363	1.200866	1.1977156	1.145748	0.9191597	0.78057	0.9196617	0.9237905	1.0156784	1.0156784	0.9586254	
L-glutono-gamma-lactone oxidase		1.0640885	1.4301397	1.0640041	1.7075694	1.367901	0.5514012	0.4861048	0.531152	1.769623	0.6966286	1.1602297	0.8164291	1.1179554	1.1179554	1.1271907	
Ornithine decarboxylase		0.717285	0.721472	0.6549876	0.7772626	0.6756911	1.1004072	1.1450986	1.0788374	1.1985838	1.2558339	1.0506804	0.9488547	1.0682747	1.0682747	0.9890449	
PAR interacting protein		0.956818	0.9813302	0.9898717	0.9866239	1.04751	1.0705303	1.0636709	1.1809511	0.9354308	0.9772195	0.943791	0.8984325	0.8976926	0.8976926	0.9277015	
Phase-1 RCT-128		1.294693	1.2855294	1.2062238	1.4110882	1.3865926	0.9785898	0.8117476	0.6781739	1.1931038	1.2814536	1.3669001	1.139258	1.0752748	1.0752748	1.287445	
Phase-1 RCT-180		1.1483281	1.0310713	0.8550887	0.7955197	0.7782789	0.9105814	0.9332984	0.9509065	1.4803859	1.0721633	0.87550628	0.9586732	1.128116	1.128116	1.0210711	
Phase-1 RCT-182		1.2871236	1.173113	1.2399208	1.499539	1.2597803	0.8650094	0.8690648	0.921521	1.0144898	1.1266818	1.101302	1.1339732	0.9596329	0.9596329	0.9476083	
Phase-1 RCT-207		0.7455412	0.6722333	1.0039043	0.9476345	0.9173919	1.1062521	1.2135482	0.9843222	0.9862686	1.0294182	0.9738004	0.9230917	0.9899049	0.9899049	0.9899049	
Phase-1 RCT-213		0.8470503	0.8945488	1.0632862	0.8746682	0.913462	1.0766559	1.2222823	1.1577325	0.9597511	0.9825435	0.9471139	0.9526224	0.9489765	0.9489765	1.0423627	
Phase-1 RCT-256		1.430769	1.3862747	1.0741428	1.1674851	1.1853721	0.9666137	0.7637703	0.9368426	1.2781714	0.8220197	0.7984047	0.9187123	1.0223114	1.0223114	1.0767794	
Phase-1 RCT-258		0.7695987	0.7648709	0.7486716	0.7190126	0.7437233	1.0846621	1.2428603	1.1467519	1.0524114	1.0686125	1.077604	1.0532711	1.0166292	1.0166292	1.0093024	
Phase-1 RCT-264		1.6015104	1.7085139	2.1963688	1.7806599	2.1670918	0.7562202	0.5226375	0.4952692	1.4455702	1.1750609	1.2871909	0.8396012	0.9839293	0.9839293	1.7545687	
Phase-1 RCT-271		0.7688758	0.9026864	0.7989568	0.9284053	0.6186034	0.9099602	0.7964562	0.7079361	1.3689095	1.052006	1.0116999	0.9160094	0.9269968	0.9269968	0.8953702	
Phase-1 RCT-288		1.2899207	1.2300128	1.0914503	1.3261905	1.5674889	0.7834119	0.8188883	0.7954217	0.9247562	1.216582	1.1688884	1.4516313	1.2300769	1.2300769	1.427205	
Phase-1 RCT-38		1.5152737	1.2743127	1.1449655	1.3405435	1.235193	0.7580349	0.559616	0.7196273	1.2303029	0.8730323	0.8456874	0.9908432	1.1965963	1.1965963	1.0782242	
Phase-1 RCT-39		0.8148645	0.985646	1.0381837	0.9632005	0.9619061	0.9715819	1.2165273	1.182569	0.8658704	0.9589824	1.0253248	0.957026	0.9618945	0.9618945	0.9752221	
Phase-1 RCT-68		0.8297508	0.904252	0.9570798	1.0049536	1.0097767	0.9201565	0.8898639	0.9902233	0.9655551	1.1000869	1.0038714	1.0477237	1.0134537	1.0134537	0.9698731	
Phase-1 RCT-33		1.3452349	1.2158774	1.339211	1.2500211	1.2098606	0.8918113	0.8176999	0.918787	1.7565603	1.1223489	1.2900771	1.1409335	1.0846313	1.0846313	1.0783039	
Phase-1 RCT-36		1.1025267	0.9779161	0.9764539	0.8156356	0.8033626	0.9367272	0.940553	0.9178355	1.1024232	0.8833934	0.9798833	0.962268	0.9845375	0.9845375	0.9138178	
17-beta hydroxysteroid dehydrogenase, type 2		0.7318453	1.3348261	0.7074933	0.8423734	1.0341032	0.5708229	0.6211091	0.5364773	0.8410726	1.0604885	0.9038597	0.6390444	1.1015714	1.1015714	0.7955377	
Senescence marker protein-30		1.7119398	1.8992468	1.7557583	1.8732315	2.0919435	0.8742879	0.7380418	0.755304	0.9124727	0.7882803	1.2741297	1.0138578	1.2730807	1.2730807	1.8797433	
Ribosomal protein S17		1.4899285	1.1529039	1.3930326	1.5315981	1.3960164	1.3555325	1.4826103	1.4480318	1.2826489	1.1597878	1.290055	1.5469812	1.5309917	1.5309917	1.6488748	
Phase-1 RCT-43		1.0545739	1.0098735	1.1746757	1.0779393	0.9751208	1.045696	1.051054	1.0150052	0.7215759	1.1317864	1.0989369	0.8062131	0.8345913	0.8345913	1.1775727	
Phase-1 RCT-49		0.7833654	0.8089913	0.8498184	0.7812656	1.0211347	1.0137843	1.0463966	1.1178201	1.002063	0.9867035	1.0544252	0.9888685	1.0253555	1.0253555	0.8995045	
Phase-1 RCT-48		1.058678	1.0457726	1.16025	1.0438988	1.3652995	1.1491603	0.9107115	0.9297975	0.9271559	0.9909442	1.088219	0.9067153	0.8599532	0.8599532	1.2042587	
Phase-1 RCT-40		1.2491119	0.9635474	1.2794034	1.2239301	1.1034546	0.8724255	0.7425576	0.7913646	0.8232138	1.1422244	1.3273443	1.0629424	1.1622511	1.1622511	1.6212785	
Phase-1 RCT-296		1.4011158	1.2786795	1.3287432	1.1360538	1.2712151	1.667184	1.0480496	0.7264494	1.863328	0.9543105	1.0440864	1.4472808	1.451357	1.451357	1.2738534	
Phase-1 RCT-295		1.128038	1.0507914	1.1473079	1.20851	1.188442	0.9686615	0.9391525	0.8606697	1.3871534	1.1189808	1.1831505	1.1257223	1.1046048	1.1046048	1.2450085	
Phase-1 RCT-291		1.1428862	1.0657734	0.9839928	1.169288	1.169288	0.8850941	0.9008083	1.1910933	1.0468117	1.0232352	1.0232352	1.0851074	1.0646692	1.0646692	1.0854466	
Phase-1 RCT-270		1.3803983	1.3655438	1.3317996	1.4303022	1.6158918	1.0041107	1.00365	1.0005586	1.0828471	1.3865873	1.2528908	1.2528908	1.2528908	1.2528908	1.2528908	
Phase-1 RCT-241		0.8051522	0.7655308	0.7891998	0.7747208	0.7262211	1.0056971	1.133097	1.2806469	1.0465978	1.1292498	0.9629161	1.0860603	1.0468856	1.0468856	0.9333596	

Phase-1 RCT-181	0.8075343	0.8237102	1.0661762	1.2986526	1.3249499	1.079228	1.0568122	1.1078466	1.0070107	0.9413266	0.8729432	0.820135	0.891997	0.9401304
Phase-1 RCT-189	1.5725679	1.8467877	1.5124946	1.3470984	1.4619268	0.9784118	0.7803183	1.0318937	1.2396235	1.3583872	1.1041511	0.9503825	0.8520409	1.3046457
Phase-1 RCT-179	1.2538722	1.0751095	1.0364006	1.0423476	1.1528999	0.8310729	0.8527131	0.8471132	0.9274559	1.0404768	1.0715814	0.9736088	1.1197009	
Phase-1 RCT-152	1.1220673	0.9882054	1.2110898	1.323434	1.3338519	0.9339289	0.9370489	0.939813	0.988084	1.0349246	1.0153665	1.2406565	1.0663793	1.0407035
Phase-1 RCT-123	0.693473	0.8877193	1.277528	1.0723882	1.301405	1.0723882	1.301405	1.0723882	1.301405	1.0723882	1.301405	1.0723882	1.301405	1.0723882
Paraoxonase 1	1.5812876	1.232687	1.4673971	1.450182	1.7102482	0.7965574	0.8305997	0.652568	1.0119289	1.0515544	1.0126017	0.8985652	0.9427155	1.2265177
Organic anion transporter 3	0.997758	1.1712021	0.9505479	0.7497862	0.7884035	1.0547526	1.5776743	1.0282512	1.1180246	0.9492819	0.9730621	0.9489927	0.9470705	1.0033443
N-hydroxy-2-acetylaminofluorene sulfoxyltransferase (ST1C1)	1.2095144	1.1840572	1.2011105	1.350799	1.2807394	0.8895048	0.8532761	0.7689211	0.7555214	1.3843974	1.2059019	0.7605874	0.7477419	1.3029867
Integrin beta1	0.9617203	1.2238392	0.8861653	0.7466592	0.7884035	1.2805677	1.3988353	1.2393625	1.085583	0.9676085	1.0407782	1.0615511	1.1349198	0.9612404
Insulin-like growth factor binding protein 3	1.5020888	1.2375914	1.8283125	1.5511788	1.1453799	0.9916797	0.827675	0.9380667	0.8592721	0.877552	1.2081157	1.334101	1.1207776	1.1160375
ID-1	0.8746687	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198
Hepatic lipase	1.7150329	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198	1.0518198
Heme oxygenase	0.7552453	0.8218338	1.087707	0.7707242	0.9808832	1.0463618	0.8595166	0.9338662	1.0543134	1.4806778	1.0965084	1.1825075	1.1776445	0.9275899
Equilibrative nitrobenzylthiolosine- sensitive nucleoside transporter	0.9937122	1.0826118	1.1434855	1.1273277	1.1259779	0.8938875	0.9219638	0.8331889	0.7312816	1.085001	0.9602932	0.7225043	0.7499293	1.0579885
Epidermal growth factor	1.0861543	1.0888739	1.1765313	1.101977	0.9680227	1.1821164	1.4713953	1.1419697	0.986802	1.1329082	0.9790036	1.129542	0.9915487	0.9677478
c-myc	0.7705438	0.7202084	0.7540931	0.5315431	0.5553087	1.3884487	1.6744187	1.4403946	0.8655587	0.9603918	0.9592861	1.0782863	1.0097561	1.0161318
Carbonic anhydrase III	0.937557	2.3455582	1.1080589	2.2234397	1.788235	0.4717456	0.2428967	0.3889415	1.088523	1.3210369	0.4628311	0.7019867	1.642343	
Beta-actin	0.9063423	0.7249879	0.6726425	0.5158747	0.5086513	1.0311606	1.0654813	1.1502745	1.081891	0.9214643	0.907752	0.7193065	0.7630227	1.2780128
Bax (alpha)	0.938217	0.7266508	0.8932859	0.8251528	0.8541078	1.1723841	1.3918605	1.2297782	0.7397447	0.8250983	0.7300965	0.7553867	0.7600917	0.9297409
Alpha 1 - inhibitor III	1.514807	1.1659853	1.7412591	1.4962704	1.434869	0.8339713	0.573244	0.4394174	1.0590283	1.034681	1.1419841	0.8085473	0.8408454	1.0951537
60S ribosomal protein L6	1.171478	0.9655044	1.7412439	1.4962704	1.434869	0.8339713	0.573244	0.4394174	1.0590283	1.034681	1.1419841	0.8085473	0.8408454	1.0951537
Phase-1 RCT-117	0.976172	1.456134	1.2112207	1.1984391	1.2757537	0.9608882	1.0847727	0.8503638	1.0330738	1.0984658	1.1961775	1.216433	1.3383827	0.9858468
Phase-1 RCT-102	0.8204509	1.0402229	1.3390049	1.0533947	1.0439922	1.0213945	1.003476	0.7765626	0.9696659	0.5255153	0.8580277	0.7780008	0.7410366	1.0219659
3-hydroxyisobutyrate dehydrogenase	1.1941687	1.3286915	1.0816398	1.1176853	1.2082742	0.7321373	0.6292353	0.5383043	1.2610571	1.3318844	1.2482458	1.2904385	1.2378484	1.2376874
ATPase inhibitor (rat mitochondrial IF1 protein)	1.2853584	1.2575696	1.4711634	1.5330365	1.5114492	0.9120008	0.7407866	0.5949401	0.8332637	1.254381	1.0830027	1.0897853	0.859296	2.188757
Alpha-2-macroglobulin	1.667525	2.0169163	1.9843466	1.4747986	1.0652345	1.4017104	1.5875918	2.2345076	0.8334745	1.0073193	1.1459711	1.0057851	1.325619	1.2041867
Phase-1 RCT-137	1.8480101	1.450947	1.4568958	1.5378993	1.7540562	0.8085474	0.7889221	1.3507071	1.2764891	1.0954912	0.8878304	0.9442198	0.9133599	1.4234064
Phase-1 RCT-252	1.3004028	1.3267648	1.1294037	1.555541	1.6444365	0.6443826	0.5167652	0.5571204	1.4278983	1.2419182	0.8935595	1.1765254	0.8771051	1.1809505
Phase-1 RCT-65	0.6928104	0.8345931	1.0186665	0.9032258	1.1192377	0.9886417	0.8596632	0.9626862	1.0422832	0.8905102	1.0602915	1.0635049	1.1311435	1.0710588
Liver fatty acid binding protein	1.5630232	1.1905069	2.228143	1.5095946	1.7093444	0.9100733	0.6893745	0.635787	1.71954	0.8121474	1.0035266	1.1018152	1.2808162	3.1550813
Carbamyl phosphate synthetase I	1.3780104	1.2860732	1.0595584	1.5190822	1.7880905	0.6247367	0.4812778	0.5469739	1.4817657	1.2584076	0.970985	1.3614185	0.9931091	1.268494
c-Jun	0.7676346	0.9282296	0.7808445	0.5450586	0.5898693	1.3168241	1.5152702	1.3537251	0.9039223	0.8547638	0.8765765	0.9024624	1.1536993	0.9377534
Transferrin	1.5940387	1.7494292	1.9104134	1.3264352	1.6158692	0.6740241	0.4485601	0.4162147	1.0997638	0.890679	1.0848751	0.7772953	0.8448787	1.5377084
Aflatoxin B1 aldehyde reductase	1.4205116	1.4449948	1.3040339	1.376089	0.8825733	0.950681	0.6248426	0.5731229	0.8852044	0.8707982	0.8885158	0.8413752	0.7975582	0.874931
Phase-1 RCT-15	1.0149641	0.7665772	0.9100774	0.8818033	0.8530754	0.9409332	0.7392262	0.8086339	1.1436378	1.2096839	0.9571105	0.9622878	1.0959152	1.0560554
Insulin-like growth factor I	1.778901	1.3434197	2.1773367	1.7058644	2.0093794	0.9284867	0.7512644	0.7335148	1.0911248	0.7798723	1.0827926	1.3055578	1.0789046	1.4983151
Sodium/bile acid cotransporter	1.6986712	1.4382459	1.3401401	1.3898921	1.2975508	0.5372666	0.5477486	0.5622697	1.0388852	0.9110429	0.9846363	0.9078708	0.7180137	1.0354079
Organic cation transporter 3	1.0925614	1.0572598	0.6105713	0.5946059	1.012039	1.003652	1.037116	1.0330167	1.0388852	0.9110429	0.9846363	0.9078708	0.7180137	1.0354079
Gadd153	0.7511739	0.828822	0.7977585	0.839857	0.8773079	1.34298	1.5339345	1.2832084	0.748016	0.8571322	0.8000311	0.8743864	0.8406588	0.9469438
Phase-1 RCT-109	1.319775	1.2635435	1.209529	1.373058	1.2669846	0.8382108	0.9537827	0.949526	1.1794771	1.0773382	1.2581204	1.3296557	1.2162268	1.283403
Phase-1 RCT-48	1.0486486	1.0359122	1.0308616	1.5352123	1.3457224	0.8523502	0.8932362	0.7324827	1.0434328	0.9988464	1.16451	1.0642401	1.0492612	1.0712706
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.2518569	1.1976771	1.110242	1.1088881	0.9842689	1.1255133	1.0695036	0.9343724	1.0099261	1.0030762	1.0932103	1.2789837	1.278054	1.1439824
Glucose-regulated protein 78	1.3342988	1.5185745	1.8409583	1.632476	1.4063464	1.1497979	1.3315455	1.2719811	1.0131451	0.87427271	0.8703954	1.0328139	0.9787323	1.7642215
Ribosomal protein L13A	1.334506	1.2544535	1.5514883	1.3720982	0.974562	1.1429586	1.015644	1.0137618	0.8964157	1.2243375	1.3325597	1.2555847	1.4471568	
Monocyte chemotactic protein receptor (CCR2)	0.8167378	0.7730353	0.4676351	0.439017	0.4357051	1.1258695	1.116279	1.0635276	0.9999543	1.0318146	0.9496133	1.1387159	1.0802208	0.9219889
Fas antigen	1.0709106	1.0974652	0.9655132	0.6964714	0.6039698	1.0454319	1.117625	1.1851271	0.9025399	0.9621458	0.9836058	0.8986581	1.0111462	1.0369841
Calpain I heavy chain	0.7889914	0.9139944	1.022165	1.0197328	0.9965501	0.9631278	1.0223162	1.0810969	1.0015395	1.0217333	1.0410714	1.1729668	1.1133566	0.9291288
Uncoupling protein 2	1.0232466	1.1592199	0.9284468	0.6093494	0.4797601	1.0652039	1.3203048	1.1257765	1.1632596	0.9457365	0.8681848	0.9191675	0.8783616	1.2037797

Phase-1 RCT-168	1.255812	1.204487	1.215972	1.418922	1.328343	0.895305	0.906736	1.121633	1.133084	1.057057	1.059548	0.983604	0.996697	0.928586
Phase-1 RCT-154	0.850494	0.873046	0.693315	0.740997	0.537806	1.134204	1.251685	1.070859	1.168837	1.116709	0.876837	1.113094	1.091250	0.997447
Superoxide dismutase Mn	1.1902138	1.1333333	1.2705543	1.4292388	1.3460727	1.3063849	1.5980414	1.3302705	0.9403153	0.9566949	1.0175234	1.0968761	0.991087	1.0768795
Phase-1 RCT-214	1.2869326	0.8001259	1.0555484	1.057008	0.9803799	0.8895967	0.8734321	0.8535299	1.1279243	1.0795431	0.852805	0.9330494	1.0174085	1.0551077
Phase-1 RCT-225	0.9618574	0.8649966	1.0239271	1.1455531	0.9038883	0.8097684	1.0183999	0.8545186	0.8345152	0.8050914	0.899617	0.8663164	0.8047832	0.9292868
Phase-1 RCT-181	0.9918725	0.9733141	1.0694084	1.3084567	1.310389	0.8588813	0.9079188	0.8274484	1.2502851	1.041412	1.0044295	1.1977608	1.3564018	1.0679021
Nucleoside diphosphate kinase beta	1.4191723	1.2129245	1.131739	1.4120821	1.1464012	1.0329787	1.2023184	0.8978298	1.1134032	1.0292487	1.0950992	1.2590989	1.2590989	1.0190003
isoform	0.7717548	1.5941315	0.8666518	0.790318	0.6020882	0.9122509	0.8082891	0.590655	0.709572	1.0301657	0.9287958	0.7216595	0.8558136	1.0212431
Extracellular-signal-regulated kinase 1	1.2447221	0.9935773	1.0314767	0.9289374	0.7948974	0.8794742	0.8794742	0.7867172	1.3107276	1.1808417	1.3384054	1.3609494	1.2922487	1.1320393
Ribosomal protein L6	1.3765766	1.3970591	1.2474668	1.3841368	1.2749565	1.0957112	1.0308098	0.8797402	1.0408818	1.0408818	1.1262974	1.1957495	1.1792107	1.1792107
Aldehyde dehydrogenase, microsomal	0.8867909	1.0365078	1.0248368	1.0361072	0.777413	1.2521526	1.2612504	0.9461566	0.9716878	1.0376903	0.956326	0.9450599	0.9700699	0.9604055
p53	0.8795312	0.9927617	0.9055252	1.1248585	1.091172	0.860701	0.7067862	0.8583314	0.9261603	0.8891352	1.01074	0.9126832	0.937862	0.9358967
Phase-1 RCT-239	1.008894	1.011835	0.8961974	0.4757374	0.6007741	1.3143358	1.6589895	1.2833334	1.005572	1.5816623	0.9999999	1.1278119	1.0858263	0.9224855
Macrophage inflammatory protein-2 alpha	0.8514996	0.8929095	0.9083477	0.9209281	0.8120038	0.9000774	0.8390552	0.8977981	1.0485435	1.1453815	1.1530309	1.1703004	1.1420445	0.8176588
IgE binding protein	0.8584237	0.856757	0.9280433	0.9778271	0.8557968	1.1693071	1.2521225	1.1805941	1.0316281	1.0532663	1.0359963	1.0139332	0.8347453	0.9123045
Phase-1 RCT-205	0.9057967	1.4374298	1.0739312	1.0499053	1.105317	1.0797762	1.2323722	1.1641938	0.89281	1.1140764	1.2352814	0.8724201	0.8399391	0.9570356
Melanoma-associated antigen ME491	0.8306937	0.7918078	0.8002034	0.7083569	0.7963949	1.178659	1.3069999	1.1310357	0.9102228	0.9558458	0.8615268	0.8274908	1.029818	0.8944477
Phase-1 RCT-242	1.2927643	1.0842178	1.4740651	1.8991622	1.4181077	1.6315569	1.776944	1.5838566	1.1487687	1.2240095	0.8896188	0.9883223	0.7948512	0.7688351
Endolase alpha	1.305303	1.2993885	1.180289	1.4917367	1.2076551	0.8441173	0.8799108	0.8007828	1.0226659	0.9214841	1.0081626	1.0814888	1.0255475	1.5219233
Thymosin beta-10	1.5091268	1.3984262	1.2361985	1.1509507	1.028041	0.9378684	0.6458968	0.7412532	1.1032263	1.0245838	1.1768026	1.0187398	1.0796642	1.1997866
Carbonyl reductase	0.8785255	0.7994532	0.7166372	0.8377288	0.4667849	1.2766831	1.48294	1.1874048	1.1463575	0.9205086	0.7950811	0.906508	0.8447588	0.893434
MAP kinase kinase	1.0621337	1.009124	0.999311	1.0872375	1.0078514	1.2043188	1.2869639	1.3002908	0.8221036	0.8605584	0.8396576	0.9363269	0.9195095	0.9379798
Phase-1 RCT-162	1.2826754	1.0790027	1.0307014	1.0802282	1.1327239	0.8449562	0.8340577	0.7813508	1.1150295	1.1095245	1.1246326	1.1930673	1.0812286	1.0404065
Phase-1 RCT-72	0.8231907	0.6832535	0.9097821	0.7989044	0.9495032	1.0411463	1.1040669	1.0457451	1.0213201	0.9128923	0.9477841	0.9273466	1.0046018	1.0128772
Ribosomal protein S8	1.5901202	1.2074176	1.3756218	1.5300041	1.4453561	0.7878938	0.7639971	1.1659472	1.301106	1.4372185	1.6588395	1.6420211	1.3368916	1.3368916
Proliferating cell nuclear antigen gene	0.8914628	0.7713764	0.8566057	0.8357657	0.7837561	1.3808198	1.496065	1.2244556	0.7595564	0.8328493	0.7557602	0.850297	0.7876923	1.5475844
Phase-1 RCT-192	1.2848046	1.1900749	1.3014731	1.3761735	1.5242581	1.0709258	1.0240305	1.0194335	1.065124	0.9881312	1.0662551	1.3071494	1.2148783	1.1877639
IKB-a	1.4280132	1.3659623	1.4479893	1.5759537	1.237178	1.0275424	0.8844844	0.891565	0.8953676	0.7877986	0.8725718	0.7947372	1.0274842	1.0274842
Endogenous retroviral sequence, 5' and 3' LTR	0.7973141	0.9291518	0.7693273	0.8758664	0.8849374	0.7412376	0.7381192	0.728558	0.722818	0.7864444	1.307152	0.7023762	0.8040537	1.3956914
Phase-1 RCT-37	1.0593352	0.968588	0.9729766	0.9023704	0.9981638	0.9250751	0.9046563	0.8964241	1.2269347	1.1489819	1.1280755	1.185578	1.1031748	0.9479765
Matrix metalloproteinase-1	1.5453489	1.2050109	1.0781238	1.0077423	0.9188837	1.0002524	1.0101168	0.9255856	0.8420863	1.0203842	1.0807967	1.2688478	1.023542	1.1683971
Cyclin G	0.6854	0.8179451	0.7790716	0.7922362	0.6680272	1.3745749	1.8233068	1.2835743	0.9119271	0.9947406	0.9805602	0.97022	0.9889929	0.9087066
DNA polymerase beta	1.3494798	1.2155513	1.3095411	1.3349464	1.0753257	1.0084074	0.917475	0.7997768	1.083422	1.0825723	1.001945	1.1445652	1.1796546	0.9748843
Phase-1 RCT-127	0.825873	1.0862664	0.8033638	0.8737323	0.8999832	0.9441873	1.0375093	0.8780295	1.0247047	1.0557346	1.1815773	1.1086482	1.1420695	0.923994
Multidrug resistant protein-2	0.8434491	0.9258708	1.0008652	0.8606504	1.0289519	1.3461186	1.5954124	1.5065068	0.9127318	0.9793311	1.0613372	1.1141677	1.0691438	0.9155075
Ribosomal protein S9	1.224928	1.0721238	1.4680871	1.5258466	1.2485844	1.3009909	1.2081486	0.8816395	0.8975217	0.9496523	0.8582842	1.1073796	1.137637	1.5202748
Phase-1 RCT-12	0.9664395	0.837669	0.8102855	0.7788463	0.7718306	1.0230986	1.0833209	1.0719265	0.905771	0.9567398	0.9113789	0.8819015	0.8992224	0.9284709
Beta-tubulin, class I	1.298692	0.8636096	0.8195305	0.7650879	0.6129431	0.9299687	0.926104	0.9484149	1.2590909	0.7139844	0.940439	0.9863808	1.0336927	1.1051316
Argininosuccinate lyase	1.4511955	1.097112	0.8182892	0.8788803	1.5461082	0.7990273	0.5735566	0.5314547	1.384146	1.3494147	1.2387845	1.7201061	1.164546	1.1223149
Elongation factor-1 alpha	1.5463958	1.2081932	1.2515804	1.3828574	1.561409	0.8585613	0.8673196	0.9045184	1.065813	1.030178	1.4024352	1.2551086	1.1639271	1.2484771
Phase-1 RCT-55	0.8514211	0.7055094	0.9987911	0.9834593	0.9283994	0.9256669	0.9973241	0.9382	0.9075671	0.8891872	0.8127232	0.8456082	0.8768845	1.0245502
Macrophage inflammatory protein-1 alpha	0.7170748	0.6841251	0.8503473	0.2711811	0.3656623	1.1567888	1.852848	1.3597641	0.9348777	1.0203453	0.9580574	0.9428449	0.911687	1.0122651
C-Hras	0.8465128	0.8468879	0.8171579	0.7996402	0.8104363	1.1218477	1.344779	1.126374	0.7976978	1.3341768	1.1276052	1.1260784	1.1889749	1.3012285
Multidrug resistant protein-1	0.8878728	1.1485119	0.9263793	0.845987	1.0715888	1.2914727	1.4859587	1.3232402	1.0387156	1.0215632	0.9612642	1.0127537	1.0274177	0.8631196
T-cell cyclophilin	1.5044964	1.2310063	1.5740523	1.6992981	1.5992981	1.5992981	1.5992981	0.8455234	0.8362821	1.082281	1.0765048	1.1034225	1.2069904	1.2437195
Phase-1 RCT-185	1.1385449	1.1881014	1.0902781	1.1783406	0.7712944	0.7243637	0.5549018	0.5549018	1.0505164	1.0576522	0.9334025	0.9813663	1.0844964	1.0844964
25-DX	1.4017638	1.4851091	1.1868993	1.3784021	1.2833066	0.9052278	0.8393271	0.8444488	0.8307657	0.9244378	1.1979418	0.9428057	1.0496841	1.371578
Ref-1	0.8650547	0.892798	1.076828	0.8998539	0.9118171	1.0639052	0.8875001	1.0749724	1.0133383	0.928237	0.9607235	0.9863501	0.9191864	0.9191864
Apolipoprotein CIII	0.9798673	1.3011009	1.5328379	1.1663746	1.4715865	1.1027229	1.106996	0.8830666	1.0024836	1.1322832	0.9541856	0.8737478	1.0402081	1.0402081

NADPH quinone oxidoreductase-1 (DT-diaphorase)	0.7618618	0.8576011	0.7359409	0.7183881	0.814628	0.9087644	1.1272768	0.8069846	1.216832	1.0020539	0.9445918	1.2794201	1.1562097	0.9344609
Pyruvate kinase, muscle	0.9097487	0.8056371	0.8073222	0.7705396	0.8179476	0.8675874	0.981047	1.1860474	0.9981166	0.991918	0.8848587	0.8522423	0.8364939	0.9217162
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Table 35. Expression Data for 24 Hour															
Timepoint (1)	GEN 38	GEN 38	GEN 150	GEN 150	GEN 150	GEN 150	GEN 150	GEN 150	GEN 150	GEN 150	GEN 150	GEN 150	GEN 150	GEN 150	GEN 150
Compound-Dose (2)	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225
Animal Number (3)	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Liver Toxicity Necrosis Classification (4)	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name (5)	1.055188	1.2747266	0.8352415	1.0515656	1.2005216	1.0661025	1.0353534	1.034266	1.1473181	0.9408748	1.0194308	0.9971745	1.0182787	1.021613	1.021613
Phase-1 RCT-78	0.8198518	0.6198857	1.2702838	0.6898923	0.9363558	0.7868741	0.9302737	0.795939	1.048167	0.8047211	1.0642765	0.9833431	0.9833431	0.7545918	0.7545918
Gammag-actin, cytoplasmic	0.7521346	0.7571958	1.0079609	0.9293442	1.096076	0.9130963	0.7689976	0.920652	0.9778423	0.9066948	1.0283751	1.2616638	1.104137	1.0351758	1.0351758
Malrin F/G	1.1557597	1.0622607	0.9375411	1.285257	1.1806573	1.1412085	1.0519023	1.106215	1.0233219	1.4562848	0.9420586	1.0802684	0.9580917	1.0495497	1.0495497
Zinc finger protein	1.1572617	1.2643887	1.3700572	1.3322263	1.4139736	0.9163396	0.7124679	0.8018299	0.9532248	0.9532248	1.0104743	1.0224717	0.9911307	0.9352554	0.9352554
Cathepsin L, sequence 2	0.8705422	0.9115949	1.0369977	0.9699194	0.9641112	0.8295172	1.0592928	1.075557	0.9634249	0.9912524	1.0940017	0.9574993	1.1608081	1.1688123	1.1688123
Gadd45	1.042422	0.885382	0.8390424	0.8312341	0.8475766	0.9181815	0.9063122	1.0724459	0.9700469	1.139133	1.2130365	0.9665396	0.9005471	1.0160611	1.0160611
Phase-1 RCT-144	0.9356891	0.9614306	0.747204	0.9580987	0.9181815	0.9063122	1.0724459	0.9700469	1.139133	1.2130365	0.9665396	0.9005471	1.0160611	1.0160611	1.0160611
Phase-1 RCT-145	1.0640572	1.188228	1.0060835	0.9323747	0.8741948	1.2208888	1.1046655	1.0242348	0.884317	0.884317	1.0624366	0.9326247	1.0237162	1.2248577	1.2248577
Phase-1 RCT-92	0.7379317	0.9804677	1.0638373	1.362879	1.1286887	1.0517061	1.1688839	0.911805	1.0378847	0.9751588	0.8411602	0.9510061	0.9489422	0.9242089	0.9242089
Phase-1 RCT-89	1.099622	1.1102651	0.9022881	1.1569375	1.0637238	0.9988757	0.9604561	1.1150047	0.9410381	0.9280174	1.0099242	1.0453071	1.0170665	1.0170665	1.0170665
14-3-3 zeta	1.2623328	1.1191938	0.8584264	1.1761572	1.1074169	0.8714129	0.9759859	0.9818059	0.8350081	1.0155883	0.9577717	0.9284474	1.0373116	0.9425055	0.9425055
0.925337	1.040784	1.0976964	1.12729	1.0662849	1.0889608	1.0874774	0.9384303	0.9794911	0.9188085	0.871156	0.9486678	1.0242032	0.9188135	0.7335718	0.7335718
Dynamin-1 (D100)	1.0825399	1.1700188	1.4345232	2.0921576	1.605083	1.0410452	0.9582354	1.084	1.0188085	0.871156	0.9486678	1.0242032	0.9188135	0.7335718	0.7335718
Insulin-like growth factor binding protein 1	0.7047218	0.6478616	0.9738993	0.7895883	0.9590141	0.8905555	1.0557543	0.7439837	0.9862371	0.7300397	1.0235599	0.9698631	1.226455	1.226455	1.226455
L-gulonolactone oxidase	0.9453914	1.0401229	1.253372	1.16708	1.071773	0.7638575	0.9818266	0.9651812	1.1404023	1.0897549	1.2847718	1.1232225	1.0788171	1.0144377	1.0144377
Ornithine decarboxylase	0.9102975	0.8165684	0.7777803	0.8587944	0.9800295	0.8471083	1.0028222	0.9550558	0.9731146	1.0036325	0.9815915	0.9386678	0.984671	0.987309	0.987309
PAR interacting protein	0.9570573	0.700732	1.650583	1.1966556	1.126931	0.9878134	0.9231682	0.9231682	0.9913922	0.8352602	0.8431473	0.8913648	1.0398548	0.8298667	0.8298667
Phase-1 RCT-128	0.6544365	0.7555678	0.930899	0.9675677	1.0151885	0.9736103	1.2165886	1.2033175	0.9684245	1.1311877	0.9897975	1.0655788	1.423079	0.7937529	0.7937529
Phase-1 RCT-180	0.8605765	0.9579595	0.8972056	0.9338885	1.0684732	0.9828088	1.0920497	1.0193869	0.9580085	1.1608855	1.0009496	1.0920736	1.0211889	0.9505997	0.9505997
Phase-1 RCT-182	1.0235428	0.9624717	0.8860295	0.9774832	0.9121958	0.9695467	0.9995154	1.1505687	1.1204804	1.0132308	0.9636098	1.0108198	0.9673724	1.0718016	1.0718016
Phase-1 RCT-207	0.928848	0.8401216	0.7506663	0.950741	0.9438039	0.9595467	0.9995154	1.1505687	1.1204804	1.0132308	0.9636098	1.0108198	0.9673724	1.0718016	1.0718016
Phase-1 RCT-213	0.7391604	0.7439599	0.988822	0.9327653	0.8714823	0.9307904	1.040214	0.8691208	0.9481896	1.0202287	1.0200604	1.0380136	1.0142348	1.020331	1.020331
Phase-1 RCT-256	0.853754	0.8421255	0.7389643	0.8995013	0.8995013	0.8995013	0.9219119	0.9441162	1.0420799	1.051067	1.0202287	1.0200604	1.0380136	1.0142348	1.020331
Phase-1 RCT-258	1.1048342	1.2938552	1.1302369	1.1792897	1.5427473	0.8440461	0.9338263	1.0263332	1.0582463	0.9371872	0.7988336	0.9198785	0.8815069	0.9549013	0.9549013
Phase-1 RCT-264	0.5411952	0.6070189	0.8997602	0.7572687	0.5278856	0.7633346	0.8477693	1.0652008	0.9851937	1.2707809	0.9527961	1.0058054	0.8627886	0.9218332	0.9218332
Phase-1 RCT-271	1.2891071	1.4345571	1.1376855	1.7075455	1.4425079	0.9810932	1.0711797	0.9895923	1.0537738	0.8574683	0.7401016	0.9785434	1.0032429	0.8589131	0.8589131
Phase-1 RCT-288	0.7590243	0.7487763	1.0200139	0.8668822	0.824148	0.9276527	0.9867327	0.9111179	0.9646018	1.048939	1.0951434	1.2021264	1.2582306	0.986959	0.986959
Phase-1 RCT-39	1.084732	1.0781833	0.9069771	0.7637644	0.8367725	0.9581429	0.8323883	0.9626771	1.2017114	0.983249	1.064578	1.0431495	1.2024882	1.2024882	1.2024882
Phase-1 RCT-68	1.2212994	1.2813135	1.2087077	1.0305592	1.279018	0.8820305	0.9912864	1.021445	1.1762831	0.9866021	0.9402037	0.9509398	0.952525	0.9665559	0.9665559
Phase-1 RCT-33	0.8488769	0.7416762	1.1751765	0.7637893	0.9402119	0.8389993	0.9821137	1.2184277	0.8701803	0.8573543	0.7197558	0.8877618	0.9973711	1.0160275	1.0160275
Phase-1 RCT-36	0.9046669	0.7820277	1.1100166	0.8108469	0.926394	0.9665701	0.987737	1.0955002	0.9205775	0.9878899	0.8712091	0.9499825	0.9418746	1.0428163	1.0428163
17 beta hydroxysteroid dehydrogenase, type 2	1.0122778	1.4098544	0.8313661	1.0563204	0.3824679	0.8028804	0.384169	0.6588196	0.973591	1.1435977	1.1573704	1.4463253	0.9232826	0.8690408	0.8690408
Senescence marker protein-30	1.3482227	1.1890293	1.244297	1.388354	1.2558265	0.8405275	0.8360676	0.777746	0.9937916	0.7182488	1.3233312	1.0193983	1.2239228	0.9022477	0.9022477
Ribosomal protein S17	1.0885835	1.1023833	1.5467294	1.3189099	1.2300284	0.8983638	0.8933959	0.9578706	1.0782674	1.2887153	0.8734309	0.8419237	0.9253905	0.7330986	0.7330986
Phase-1 RCT-83	1.2326087	1.3073136	0.888756	0.9282577	1.1600358	1.0628608	1.1187413	1.1395622	1.2520958	0.9270518	0.8911226	0.8085052	1.0760432	1.0760432	1.0760432
Phase-1 RCT-49	1.0603086	0.9914631	0.9035108	0.9641152	0.9274265	1.0693439	0.9832966	1.0513809	0.9483959	1.0876163	0.9830225	0.8888272	0.9161264	1.0405135	1.0405135
Phase-1 RCT-48	1.145371	0.9622536	1.6593747	1.8654797	1.3337924	1.1499543	1.4814893	0.9259428	1.1433335	0.9270871	0.8836048	0.8517246	1.2521988	1.3124897	1.3124897
Phase-1 RCT-40	1.125579	1.1318979	1.1579304	1.4880637	1.2714936	0.9542326	0.9344972	0.9665231	1.1433335	0.9270871	0.8836048	0.8517246	1.2521988	1.3124897	1.3124897
Phase-1 RCT-296	1.0843495	0.782425	1.2385194	1.604609	0.8761265	0.9452577	0.8324739	0.9901228	0.8196391	0.6180413	1.027892	0.9221876	1.3798724	0.7942146	0.7942146
Phase-1 RCT-295	1.0558313	0.706142	1.3088284	1.06439	1.055859	0.8401974	0.8426808	0.9769668	1.0745223	0.9050343	0.9973848	0.9680795	1.0285961	0.9429637	0.9429637
Phase-1 RCT-291	0.7223049	0.732149	0.9854615	0.9915227	0.9698471	0.9240737	0.874132	0.9027695	0.9773631	0.9503338	1.0276227	1.1437378	0.9298416	0.9298416	0.9298416
Phase-1 RCT-270	0.934988	1.1213268	0.9305639	1.039462	1.1381116	1.0113083	1.1271573	0.8594698	1.1029173	0.7998874	0.9743679	0.8952242	1.1103922	0.89437	0.89437
Phase-1 RCT-241	0.8974428	0.7500152	0.7288621	0.8484215	0.9124418	1.192604	1.1218424	1.0909806	1.1078087	1.1237997	1.0777122	1.0831321	1.1070241	0.9853983	0.9853983

Phase-1 RCT-191	0.9251101	0.8495165	0.9176829	0.9168581	0.9582346	1.119819	1.2205441	1.1571751	1.0781744	1.0791872	1.0272368	0.9955303	0.9930984	1.0519683
Phase-1 RCT-189	1.9779706	1.0938208	0.9481671	1.1903716	1.0813708	0.9955143	1.0355072	0.9996302	1.1124154	1.0427809	1.0262027	1.0594009	1.091627	1.0108492
Phase-1 RCT-187	1.1773332	1.1081388	1.1151202	1.2735337	1.1303053	0.8986561	0.8561955	0.8934368	1.0480126	0.8813787	0.8530107	1.0205733	0.997062	0.9310848
Phase-1 RCT-152	0.9361963	0.9521914	1.1893864	0.9580758	0.9925607	0.8629715	0.8372306	0.906831	1.0134318	1.0687509	0.8248254	0.8633249	0.98147	0.8266792
Phase-1 RCT-123	1.0334674	1.0089153	0.9840272	0.9524228	0.8834574	1.1506069	1.1419148	1.2984577	1.0071745	0.9682857	1.0001745	0.9682857	0.9543811	1.108691
Paraoxonase 1	0.9521239	1.0198944	1.0859834	1.0961016	1.0891016	0.8021879	0.8265013	0.7698115	0.8397236	0.7640968	0.8197056	0.8579436	0.9522977	0.7212046
Organic anion transporter 3	1.1841656	1.2083371	1.1187407	1.0294971	0.8862291	0.8401815	0.778048	0.6517652	1.0557644	0.8243237	1.1395832	1.1664703	0.9552745	1.3530852
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	1.1828593	1.325366	0.8816444	1.2887497	1.0028814	1.0628104	0.9025569	0.9921985	1.1037802	1.0191003	0.8369829	0.8877028	0.6886919	0.8734899
Integrin beta1	1.0944642	1.2165554	1.2213789	1.2302574	1.1724662	0.788991	1.011055	1.0007664	0.9368945	0.8638666	1.138228	1.0484308	1.0606141	1.0103307
Insulin-like growth factor binding protein 3	1.2631353	0.9708698	1.4993639	1.600706	1.3652834	0.8727799	0.9009781	1.0551021	0.9522151	0.7742635	1.0059398	0.9932745	1.197857	1.0487727
ID-1	1.1816947	1.0564458	0.7407284	1.0705792	1.256281	1.0303708	1.0610521	1.0400918	1.009254	0.9496815	1.1559254	1.1448548	0.9106543	0.805737
Hepatic lipase	0.8303916	0.5600941	0.9810646	0.7321705	0.8121492	0.833428	0.8863934	0.9409493	0.8627411	0.6987075	0.8321517	0.9855757	1.0348941	0.6967887
Hemo oxygenase	1.0702342	1.2634375	1.050937	0.8638499	1.3669224	1.1569924	1.0006303	0.8626806	1.2185916	1.0401386	0.9930304	0.9999794	1.0400425	1.0586224
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	1.0775343	1.1715678	0.8110661	1.0901519	0.8949498	1.0685555	0.8813955	0.9544603	1.0804304	1.1586039	0.9096631	0.905031	0.8184449	0.9190189
Epidermal growth factor	1.3075118	1.388108	1.3267832	1.379375	1.1397313	1.0111729	1.1043909	0.9754682	0.9556871	1.0565844	1.0365705	0.9829786	1.0521388	1.0301532
c-myc	0.966544	0.9361463	0.9351922	0.9884895	0.9532215	1.1028724	1.1579606	0.8693986	0.862393	1.0101552	1.1288445	0.9305725	1.0381058	1.1311163
Carbonic anhydrase III	1.3327147	1.3242418	0.439203	1.6906607	0.7984101	0.5834242	1.3014743	0.5285736	1.4373378	0.7854026	0.8170807	0.9959975	0.7321452	0.7210667
Beta-actin	0.8117186	0.6514357	1.2112511	0.9523154	1.039192	0.8045793	0.983063	0.8374251	0.9728326	0.9561148	0.8947739	1.0470562	1.0591466	0.8745468
Bax (alpha)	0.9902396	0.9984193	1.0850557	0.9463466	0.9335294	0.9603785	1.1219188	1.170973	1.0088831	0.7727151	1.3098528	1.181285	1.2065555	1.0946878
Alpha 1 - inhibitor III	0.6020309	0.8345335	0.8800563	1.1766325	0.8413712	0.835433	0.9544944	0.8765229	0.8041059	0.6078007	0.7007685	1.0766128	0.8356605	0.5285459
60S ribosomal protein L6	0.9204704	0.8722401	1.1303384	0.9292927	1.0307205	0.7087612	0.7280433	0.9785352	0.8776573	1.1309985	0.9794306	0.9128872	0.9420473	0.8210973
Phase-1 RCT-117	1.5715942	1.1822119	1.3269774	1.7546465	1.5498606	0.8427857	0.563715	0.9726462	1.031061	1.0301884	1.1392871	1.1821969	1.1821969	1.4298958
Phase-1 RCT-102	1.1041666	0.6304256	0.8075329	1.1497539	0.7008895	1.2227176	0.8841807	0.9952309	0.8145928	1.4256184	1.631548	1.2034222	1.4304422	1.0819181
3-hydroxyisobutyrate dehydrogenase	0.9585799	1.0524415	1.1581172	1.3428783	1.0422841	1.0544919	0.9660614	0.8081374	1.1353905	0.9900101	0.9370501	1.0357172	1.0040869	0.819181
ATPase inhibitor (rat mitochondrial IF1 protein)	1.2636069	1.329916	1.5637999	1.7302519	1.2417653	0.9412271	0.9271659	0.9895025	0.9825305	1.1011666	0.7399393	0.7790721	0.8056236	0.8708082
Alpha-2-macroglobulin	0.68128	0.925558	0.9015269	1.1922066	0.8921916	0.8326822	0.8768965	0.8698209	0.8298237	0.8123588	0.7536168	1.1396079	1.0048278	0.6584203
Phase-1 RCT-137	1.1025071	0.9949787	1.280027	1.24049	0.9097586	0.9468865	1.0144308	0.9430574	1.0317522	1.048511	0.855108	0.9225142	0.9880855	0.8552747
Phase-1 RCT-252	0.7153574	0.9013612	1.1122495	0.8003425	1.2293086	0.8476556	0.9462754	0.7284024	0.9708658	0.858083	0.747737	0.7929267	1.0839841	0.7845403
Phase-1 RCT-65	0.9663725	0.9358417	0.9791127	0.9398298	1.014891	1.0459971	0.9322175	1.1789769	1.0395528	1.0191324	1.2497288	1.1730824	1.1810716	1.140557
Liver fatty acid binding protein	1.6880068	1.0784471	2.441092	2.0403361	1.4040172	0.6807648	0.7835433	0.9840676	0.9583159	0.7265947	0.9604703	1.0102272	0.955236	1.0393311
Carbamyl phosphate synthetase I	0.7025101	0.9568247	1.744307	0.7869708	1.3029001	0.8864681	0.9655423	0.7326866	0.8838259	0.919436	0.7875639	0.8311334	1.1897417	0.7513248
c-Jun	1.1282609	1.1265223	0.9996491	0.9696589	1.052074	0.9226851	0.8970156	0.8610245	0.847995	0.8381087	0.0519667	1.0308313	1.5700697	1.3538562
Transferrin	1.0839955	1.2138711	1.1192813	1.4871801	1.2497473	0.7778149	0.9214144	0.7760623	0.8905981	0.6326885	0.7867537	0.8372355	0.7782328	0.7506251
Alfa toxin B1 aldehyde reductase	0.9726734	0.903594	1.0153875	1.068501	0.557184	0.697222	0.9514954	0.872212	1.0571655	0.9034158	0.9028075	0.8054457	0.8688265	0.749303
Phase-1 RCT-15	1.1782337	1.3979107	1.3067362	1.4754183	1.2387602	1.048308	1.0442855	1.1508646	1.1407021	1.0726427	1.1680273	1.217463	1.0990577	1.0497311
Insulin-like growth factor I	1.2942328	0.982131	1.4482143	1.6749557	1.3596144	0.8513913	0.9096484	0.9703988	0.8730183	0.6105285	1.0402808	1.0515665	1.372127	0.9400312
Sodium/bile acid cotransporter	0.7085403	0.9230885	0.9926173	1.2366286	0.8697392	0.8149502	0.839996	0.8765463	0.9859871	0.903415	0.9028674	0.8191688	0.6603963	0.9097055
Organic cation transporter 3	0.9317605	0.898883	1.1277324	0.9273115	1.0678494	0.7944236	0.9691013	1.0576495	1.0062274	1.119748	1.0505072	0.9475793	0.9621199	0.869947
Gadd153	1.0192113	1.1481435	1.1184	0.9279088	0.9995337	1.050868	1.1076777	1.0127143	0.9793034	0.8198498	1.1825036	1.1234419	1.2247586	1.06311
Phase-1 RCT-109	0.9942706	0.9351781	1.2233347	1.1790587	1.176993	0.84171	0.8985793	1.0083104	0.8918374	0.8591611	0.9314303	0.9269586	1.0021844	0.9627958
Phase-1 RCT-88	0.7264431	1.1169629	1.0946724	1.4547548	1.26784	1.0965971	0.9389705	0.808735	1.0067487	0.9533916	1.0028412	1.0076648	1.0592301	0.894228
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.056306	0.9160739	1.2825785	1.149306	1.0256733	0.906728	0.9319413	0.916362	1.0939724	1.1254756	0.9222832	0.9855831	0.8320127	0.9368997
Glucose-regulated protein 78	1.2728306	1.1436148	1.2474352	1.093518	1.0502551	0.8099978	0.9184965	0.9690001	0.8893146	1.0267153	1.1821052	1.2917292	1.3966337	0.9924203
Ribosomal protein L13A	1.1706531	1.0532341	1.4137654	1.421048	1.328438	0.8104442	0.85232	1.02045	0.9083405	0.9349457	0.9874277	1.0427456	1.122157	0.8749976
Monocyte chemotactic protein receptor (CCR2)	1.0422331	1.1259696	0.8738682	0.9581001	0.9333133	1.1050152	1.0381026	1.160652	1.0875676	1.1388941	1.1263497	1.177159	1.0694716	1.051105
I-is antigen	1.1215537	1.0569418	1.1097461	1.234744	1.3086771	0.9073492	0.9926708	1.0573004	0.9387041	1.0408777	1.0164456	1.107393	1.120058	0.9445268
Calpain I heavy chain	1.0605546	0.9715934	1.120898	1.00047	0.8845949	1.0746492	1.0713623	1.0916545	1.0442852	1.0826102	1.0868403	0.991708	1.0958458	1.0816089
Uncoupling protein 2	1.0631307	1.0463844	1.0204524	1.1526188	1.1209371	1.024316	0.9358413	1.0590008	0.9818838	1.1686265	1.1314402	1.0040936	0.8505854	0.894228

Phase-1 RCT-168	0.8216755	0.8979535	0.840656	0.8800999	1.1638951	1.0348994	1.1002206	1.1047134	1.0354748	1.0430973	1.0322855	1.0254029	1.0594311	0.9736002
Phase-1 RCT-154	1.0592324	1.1847842	0.7402327	1.0406857	0.9854668	0.993188	1.0617615	0.9735935	1.1061276	1.2570789	0.9149498	0.8716424	0.9093918	1.0408293
Superoxide dismutase Mn	1.0324523	1.2556896	1.2993141	1.2324454	1.3698211	0.9540775	1.0481809	1.0625435	1.097389	1.0329545	1.0340834	0.9925498	1.0761425	1.1310388
Phase-1 RCT-214	1.003682	0.8628469	1.1493657	0.9719885	0.9084491	1.1195346	1.0578253	1.1578489	1.0738946	0.941444	0.9238302	1.0860199	1.0760799	0.966489
Phase-1 RCT-225	0.522997	0.887614	0.8442876	1.1305418	0.6477811	1.572599	1.3345952	1.285982	1.036237	0.9387441	1.695666	1.0767028	1.3424957	1.6355484
Phase-1 RCT-181	0.8554987	0.8911095	1.0667897	1.0034891	1.1055145	1.1227278	0.9401004	1.0271485	0.9730768	0.9978863	1.1369626	1.1350183	1.0211185	
Nucleoside diphosphate kinase beta isoform	0.837461	0.7585334	1.2227043	0.9956796	0.7809755	0.9384876	0.9721617	0.9941291	0.9584973	1.2097692	0.9245014	1.0037459	0.9943928	0.8972064
Extracellular-signal-regulated kinase 1	1.3030353	1.3173125	0.5741982	1.4144782	0.8290404	0.6853847	0.7126448	0.8411101	1.0854298	0.927424	0.9733957	1.0919198	0.8168558	0.9482259
Ribosomal protein L6	0.7790495	0.8136499	1.2115475	0.8855131	1.0623371	0.8778982	0.8188576	0.8512244	1.0134186	0.9761244	0.9173635	0.9009833	1.0712807	0.9241678
Aldehyde dehydrogenase, microsomal	0.770435	0.786681	1.0212852	0.991674	1.0396155	0.908682	0.8805981	0.8737065	0.8945173	0.9007163	0.9604214	0.915256	0.8944158	
p53	1.0615384	0.8702718	0.9221427	0.9652913	0.8431112	0.8290238	0.8863393	1.086822	0.9691505	1.1170901	1.0284007	1.0373182	0.9435353	
Phase-1 RCT-239	0.7754941	0.7583675	0.831528	0.9372528	1.0222839	1.0931111	1.1612922	1.2368444	0.8729991	0.9573811	1.0151432	1.1614729	0.9522174	0.9801117
Macrophage inflammatory protein-2 alpha	1.2062088	1.3168913	1.1146048	1.2084594	1.095413	1.1940523	1.0553911	0.8621005	0.9755085	0.933286	1.1271849	1.1432244	1.0183791	1.1889317
IgE binding protein	1.1622323	1.1153807	1.0710549	1.0563564	0.9232248	1.140696	1.0545754	1.2020317	1.1198962	1.2478137	1.0166284	0.9840332	0.8991301	1.0033376
Phase-1 RCT-205	0.9710983	0.9289777	0.8820342	0.8639512	0.9108619	1.1215739	1.1375027	1.0816698	0.9303962	1.1389754	0.8742101	0.9433627	0.946887	1.0491421
Melanoma-associated antigen ME491	1.0776676	0.9592353	0.9837838	0.9486621	0.8727094	1.1214076	1.0240333	1.1955447	0.9312111	1.12439	0.8415554	0.8630532	0.7345663	0.8408212
Phase-1 RCT-242	0.9946978	0.9852824	0.7197771	0.8528365	0.8596031	1.2176791	1.3520192	1.0448416	0.9601321	1.2883465	1.0367895	0.8837277	0.9278682	1.409768
Enolase alpha	0.7682589	0.652586	1.3166885	0.7474269	0.6501082	1.0868618	0.9155261	0.8598598	1.2823938	0.9423048	0.8803009	1.0749587	0.5307104	
Thymosin beta-10	0.9581566	0.9614191	1.2976882	1.0752945	1.2717332	1.0648916	1.098925	0.9815837	1.0454087	1.1049377	1.005104	0.9384833	0.9831431	0.8692224
Carbonyl reductase	1.0295571	1.0184896	0.821646	0.9458555	0.9468109	1.132738	1.1055502	1.1249284	1.1036372	0.8331498	1.1370302	1.0101893	1.0561584	0.9547021
MAP kinase kinase	0.9355528	0.9550098	0.9999999	0.9529578	1.0449091	0.8318034	0.8988312	0.8678213	0.8934802	0.7871419	1.0022216	0.9740614	1.1138277	0.8688429
Phase-1 RCT-162	0.9915647	0.9774251	1.0328719	1.0328719	1.0474048	0.9311755	0.9008643	0.996208	1.0644124	0.99451	0.9608235	0.9470944	0.968406	1.1346902
Phase-1 RCT-72	0.9893311	1.0555423	0.9232943	0.76772395	0.7384659	1.0286927	0.80545	1.0778855	0.9876357	1.4557978	1.0566113	0.9742001	1.0043231	1.2023968
Ribosomal protein S8	0.9744363	0.984522	1.3615699	1.0968428	1.0054257	0.8686676	0.7856933	0.9204715	0.967875	1.115866	0.883599	0.8219397	0.9268531	0.7984643
Proliferating cell nuclear antigen gene	1.0289517	1.015622	0.9388392	0.8931773	1.104059	1.0435642	1.150528	1.0209498	0.9762213	0.9370389	1.1281192	0.956804	1.0560468	0.952584
Phase-1 RCT-192	1.0849802	1.0831294	1.1885597	1.2290744	1.1015702	0.9140614	0.8477501	0.9838834	1.0495647	1.1465833	0.9126629	0.9030683	0.9719789	0.9725194
IKB-a	0.6232292	0.6108021	1.0168115	0.6802352	0.7139206	0.7946403	0.8912371	1.0719846	0.8912371	1.0719846	0.8912371	1.0719846	1.0542142	0.7009875
Endogenous retroviral sequences, 5' and 3' LTR	0.8339272	1.0410879	0.6782672	1.2246965	1.0576297	1.0766603	0.9874615	0.8465937	0.9932109	0.8529807	0.9866827	1.1340623	1.0180021	0.8513667
Phase-1 RCT-37	0.8664403	0.8622214	1.1978749	0.9125728	0.996684	1.0883018	0.9278949	1.0052736	1.0819633	1.0326657	0.9698669	1.0565768	1.045542	
Matrix metalloproteinase-1	1.1782049	1.299454	1.4858861	1.8867835	1.721907	0.9881888	1.005486	0.8973067	0.9219039	0.8589662	1.0742313	1.0791916	0.9837519	0.9809301
Cyclin G	1.133725	1.2393553	1.0897766	0.9800901	0.9793899	1.0954034	1.1774526	1.2735089	1.0770136	1.1380818	1.1913975	1.0550238	1.184819	1.1176337
DNA polymerase beta	1.0615273	0.9834485	1.3504279	1.1214584	1.0202212	0.8664167	0.9268228	1.0343568	1.0533001	1.0863816	0.9844819	0.9147182	0.8857284	0.9215249
Phase-1 RCT-127	1.3508311	1.1371017	1.0570238	1.2682382	1.0974578	1.1324238	1.000432	1.0506088	1.083276	1.1809843	1.033628	1.0258442	0.9318804	1.0018383
Multidrug resistant protein-2	1.2207487	1.201642	1.0362733	1.05017	1.4639835	0.760969	0.9476298	0.8190407	1.0389432	0.8018182	1.0586667	1.1992542	0.8480302	0.8546823
Ribosomal protein S9	1.0538338	0.8965895	1.2827181	1.1281371	1.0102783	0.9680018	0.9735779	1.014014	1.0585569	1.146671	0.8722426	0.9435788	0.8179385	0.8546823
Phase-1 RCT-12	0.9134523	0.738342	1.0464675	0.9814751	0.8225593	0.944835	1.0256185	0.9880109	0.9859499	0.7494673	1.0615547	1.091711	1.209812	1.1384444
Beta-tubulin, class I	0.9318978	0.7198955	1.0591851	0.9518801	0.7940686	0.9258713	1.1258496	1.1900632	1.134898	0.9181141	1.2401971	1.0088047	1.3341861	1.2115624
Argininosuccinate lyase	1.1616768	1.2649676	1.1984321	1.3802234	1.755123	0.9588067	0.795754	0.9648988	1.0250908	0.8651165	1.0578202	0.9828988	1.2870694	0.9484
Elongation factor-1 alpha	0.8695998	0.8452169	1.1688779	1.1082381	1.252189	0.8431848	0.874201	0.9702958	0.855924	0.8652465	0.9185001	1.0568525	1.0173639	0.6713777
Phase-1 RCT-55	0.8757478	0.78344	1.060502	0.6779376	0.8216571	0.969987	0.8684857	1.124772	1.004519	1.4760666	1.1702518	1.0224292	1.0165468	1.1220354
Macrophage inflammatory protein-1 alpha	1.1110477	1.1038848	0.6742883	0.7743608	1.2778699	1.2810473	1.1778207	1.1237075	1.3269705	1.1721885	0.9431278	0.9838689	1.051019	
C-H-ras	1.0282845	1.0176795	1.0575841	0.8977391	1.0856918	0.8866343	0.952419	1.0354452	0.9077078	0.9974935	1.0415013	1.0011833	1.0296662	
Multidrug resistant protein-1	1.4564403	1.1847847	1.0356126	1.1278173	1.369567	0.8600729	0.9240845	1.0072435	1.0016265	0.8667703	1.1637654	1.2468741	0.999822	0.947322
T-cell cyclophilin	1.0419444	0.9903078	1.739597	1.1566294	1.0391054	0.832168	0.8817307	0.9509518	1.0263171	1.0968541	0.9493278	0.8845422	0.786162	0.8539541
Phase-1 RCT-185	0.8375527	0.8364809	1.0175976	1.0495721	0.835218	1.020658	0.9409059	0.8638534	0.9288205	0.9188306	0.868544	0.9085148	0.8143076	0.8313614
25-DX	1.0412554	0.930836	1.0203073	1.292047	1.0641023	0.8263314	0.9208442	0.8534478	0.9307755	0.8529316	0.9108861	1.0469857	0.8192875	0.8052754
Ref-1	0.9130344	1.0976537	1.1708761	0.8354771	0.8001242	1.1454488	0.9817905	1.2355361	1.198424	1.1680105	1.1660105	1.186687	1.1891013	
Apolipoprotein CIII	0.7803204	0.8092343	0.8069858	0.9994127	1.0208783	1.0288476	1.1433631	1.0386315	1.0110352	1.001873	0.8245831	1.0104289	0.9439934	0.8153564

NADPH quinone oxidoreductase-1 (DT-diaphorase) Pyruvate kinase, muscle	0.8930947	1.0374857	1.1497707	0.9539757	0.7637841	1.073212	0.9830514	0.9441673	1.2365863	1.3299048	1.0784159	1.1470591	1.456122	1.4504772
	0.8897784	0.8429113	1.0722612	0.7995566	0.8095454	0.9671666	0.9089285	1.1075358	0.960882	1.0314786	1.0630391	1.1530824	1.0142794	1.016861
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 hr: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Table 35. Expression Data for 24 Hour Timepoint (1)													
Compound/Dose (2)	Animal Number (3)	ISON 200	ISON 200	KETO 20	KETO 20	KETO 20	KETO 20	KETO 80	KETO 80	LPS 2	LPS 2	LPS 2	LPS 2
Liver Toxicity Necrosis Classification (4)		1555	1556	2224	2225	2226	2234	2235	2236	344	345	346	235
Gene Name (5)		no	no	no	no	no	no	no	no	no	no	no	no
Phase-1 RCT-78	1.2505031	1.037523	1.0118381	0.9616363	1.035498	1.0254543	0.9332201	0.9411967	0.8254955	0.9239322	0.7613929	0.8727672	1.0857514
Gamma-actin, cytoplasmic	0.9091364	0.8166835	1.1659275	1.0089909	1.0664922	1.3458477	1.1841166	1.0273638	1.4728116	1.2995538	1.0561625	0.5921603	1.5311049
Matrix F/G	1.1400276	1.2635303	1.4045409	1.1655637	1.4520997	1.3897663	1.3212411	1.3312883	1.2214121	1.0614078	1.365672	0.6968141	0.7712636
Zinc finger protein	0.9105815	1.077481	0.9372821	0.9321073	0.9492872	0.9503603	0.9633657	0.9288141	1.126794	1.1159219	0.9886028	1.5783421	1.0158045
Cathepsin L, sequence 2	0.8311736	0.9960375	1.0514872	0.9972921	1.1091624	1.0340606	0.7347724	0.7278449	0.9436717	1.5763139	0.8969238	0.582418	0.9361577
Gadd45	1.0275252	0.822902	0.8170908	0.9309314	0.9052816	1.2390476	0.8384048	0.7451912	0.8678018	1.2772439	0.9053247	1.1732235	0.9083532
Phase-1 RCT-144	0.9219737	0.9032011	1.058249	1.0394533	1.0436661	1.0230348	1.0055276	0.9824628	1.1146936	1.240528	0.9166004	3.3741124	1.0549536
Phase-1 RCT-145	1.1636288	1.080062	0.9818517	1.011452	0.9659617	0.8948278	0.9676733	0.9646661	1.1258441	1.3158165	1.0964004	0.7938151	1.4380368
Phase-1 RCT-50	0.9716088	0.9437345	0.9174059	0.9532075	0.75827	0.8256272	0.8377456	0.9046626	0.5417528	0.5924412	0.587715	0.8068374	0.7951143
Phase-1 RCT-92	1.1050774	1.1418126	0.9730109	1.0146886	0.9636989	0.9027262	0.9640189	0.9525853	0.8476391	0.729455	0.8917716	0.6617778	0.8559978
Phase-1 RCT-89	0.9843224	1.0846046	1.0217621	0.9547828	1.0887404	1.0553625	1.00729658	0.9514167	1.3725313	1.2150381	1.1613891	1.2763489	1.6398852
14-3-3 zeta	0.9620059	1.0598326	0.9682949	1.0687411	1.0111337	1.0323993	1.0189403	1.034197	0.7403345	0.6832482	0.9022481	1.090302	0.8539639
Insulin-like growth factor binding protein 1	0.8184103	0.7408934	1.0325334	1.0386331	1.1922866	1.2286586	1.3332133	1.4302044	1.0328858	1.0188333	0.9434177	0.979361	0.7581065
L-gulonolactone oxidase	0.9467056	1.3205411	1.0481835	0.9867675	0.6515527	0.7392632	0.6261718	0.9359677	0.8416021	0.5949166	0.7818944	1.021713	1.2034278
Ornithine decarboxylase	1.1198183	1.3415717	0.982779	0.9736852	1.095561	1.060935	1.0942605	1.0808917	1.2346166	1.4650282	0.9154282	3.1134968	1.7955642
PAR interacting protein	0.9482912	0.9152525	0.9957943	0.9863088	1.0180666	1.0077685	0.9724114	0.9621708	1.04938	1.1340226	0.9698348	0.9768098	1.1122458
Phase-1 RCT-128	0.8116711	0.9805222	0.9075766	1.0571285	0.9793593	1.0480365	1.0452617	1.0104522	1.2298504	1.4817644	1.1603363	1.4875165	1.1603202
Phase-1 RCT-180	1.0471691	0.8750969	1.1214033	0.957489	0.9149304	0.8767978	0.9569448	1.1083627	0.4836248	0.7833743	0.5875388	0.5536438	1.177684
Phase-1 RCT-207	0.9046283	1.1958573	0.985071	1.0233893	0.9017974	0.9419976	1.0357832	1.0357832	1.048158	1.0363657	1.2255818	1.3956457	1.14726
Phase-1 RCT-213	0.9062931	0.8852346	1.0903741	1.0118436	1.0594568	1.0888842	1.1103754	1.0416561	1.2849755	1.3503848	1.2912887	1.4054707	1.0703679
Phase-1 RCT-256	1.2191864	1.2161734	1.0931038	1.0319889	1.0311526	1.1732624	1.090057	1.068113	0.7823393	0.7517834	1.3055242	0.7416284	1.0805246
Phase-1 RCT-284	0.853452	0.9415461	0.9401302	1.0370944	1.0319889	1.0311526	1.1732624	1.090057	1.068113	0.7823393	0.7517834	1.3055242	1.0805246
Phase-1 RCT-288	0.813502	0.8286943	1.175627	1.0710568	1.114426	1.0179424	1.0145471	1.2306331	1.2521025	0.93973	1.2001494	0.7527101	1.0805246
Phase-1 RCT-38	1.1878568	1.2816015	1.1007507	1.1669194	1.114426	1.0179424	1.0145471	1.2306331	1.2521025	0.93973	1.2001494	0.7527101	1.0805246
Phase-1 RCT-68	1.1031132	0.9793644	0.9438508	1.003481	1.075561	1.0368315	0.9455866	0.9702258	1.2521025	0.93973	1.2001494	0.7527101	1.0805246
Phase-1 RCT-83	0.9795846	1.1217321	0.9523327	0.9485471	0.9610996	1.0099264	0.8937842	0.8905682	1.3280482	1.3968937	1.1456852	1.0835787	1.3294483
Phase-1 RCT-33	0.985803	0.610948	0.9632369	1.0531303	0.8633063	0.8209232	1.088969	0.9222145	0.7369658	0.5569693	0.9384492	0.7056956	0.7943181
Phase-1 RCT-36	1.0526359	0.8600779	0.9551979	1.0035325	0.9150101	0.8687378	1.0515262	0.9250851	0.8884996	0.8386043	1.0073639	1.1615802	0.9811848
17-beta hydroxysteroid dehydrogenase, type 2	1.0986844	1.0047932	1.0551414	0.8188983	1.877573	0.6396263	0.7812937	0.7942803	0.3417395	0.5865167	0.3603554	0.4399631	0.5061427
Serine/threonine kinase marker protein-30	0.968605	1.1247984	0.8957754	0.7546618	0.9513542	0.928715	0.777787	1.0421358	1.1806706	1.399538	1.308219	0.5501186	1.1503042
Ribosomal protein S17	0.749037	0.835564	1.0044625	1.1093985	1.030798	1.335502	1.8366288	1.3468559	1.6399581	1.7048751	1.4565141	0.4561812	0.7498756
Phase-1 RCT-83	0.7520611	0.7839065	0.871072	1.1157857	0.8862832	1.0542574	0.8965337	1.0177182	0.6924303	0.8751018	0.7452807	0.747953	0.9308452
Phase-1 RCT-49	1.0135181	0.9343741	0.9536309	1.0347002	1.0472064	1.0431451	1.061106	0.9448738	1.1274874	1.1517112	1.1947464	0.8929473	0.913071
Phase-1 RCT-48	1.3517832	1.317018	1.1085684	1.1481524	1.0465578	1.0813711	0.7876428	0.9163891	0.8335745	0.6666043	0.8318753	0.6404746	1.1679172
Phase-1 RCT-40	0.762284	0.9037656	0.9339808	0.8958168	1.1672821	1.1384884	0.9856168	0.9789989	0.9969614	0.721992	0.8253628	0.7845329	0.5385354
Phase-1 RCT-298	0.7201648	0.962347	0.9802157	0.7501596	0.9114901	0.7135879	1.124458	1.036494	1.182447	1.2013805	1.2618243	0.7091503	0.9803652
Phase-1 RCT-295	0.9631099	1.0842984	1.1340121	1.0680392	1.1180123	1.1601406	0.9912725	0.9278608	1.0678751	0.7207322	0.8665208	0.7418923	0.7611222
Phase-1 RCT-291	1.0724095	1.0158128	1.065829	0.9912725	1.0387505	1.1059954	1.1836747	1.1059954	1.3598763	1.2013805	1.2618243	0.7091503	0.9803652
Phase-1 RCT-270	0.9365773	1.0886602	1.0313213	0.8082527	1.1331205	1.288994	0.7152339	0.8087182	0.9421668	1.070733	1.0937221	1.7081872	1.2703853
Phase-1 RCT-241	0.9740052	0.9459438	0.9672519	0.8839588	0.9089949	0.876012	0.8727469	0.8834444	1.4915233	3.3077483	1.2738243	1.0405406	1.0550077

Phase-1 RCT-191	1.1723387	1.1965928	1.1272738	1.1577923	1.1821475	1.188199	1.186553	1.1671367	0.8985956	1.2911688	0.9005617	2.8661225	1.1314224	1.2840335
Phase-1 RCT-189	1.1283184	1.0231894	1.028491	1.1416671	1.3547397	1.0065994	1.0133642	1.0133642	1.0133642	1.0181948	1.0181948	0.7625402	1.0040705	0.9549007
Phase-1 RCT-179	0.7571484	0.8324707	0.9471558	1.0014976	1.0298103	1.0329587	0.9928903	0.9828598	1.114418	1.1620084	0.9898836	1.0126687	0.7507123	0.86261
Phase-1 RCT-152	0.7487288	0.7784708	0.9882155	1.1383001	1.0854201	0.9939046	1.4144182	1.1633782	1.8289889	1.3017555	1.390048	0.6808167	0.6882049	0.7017215
Phase-1 RCT-123	1.1538095	1.0657519	0.9640008	0.849672	0.8812012	0.9529057	0.9051538	0.9504538	0.9306987	0.7887797	0.9522304	1.1606523	0.9992367	1.1168714
Peroxisome 1	0.6394304	0.6252485	0.9356232	0.8264228	0.8612702	0.9206684	0.9118621	0.9966507	0.3891244	0.4852269	0.4852269	0.4821432	0.7346454	1.0368887
Organic anion transporter 3	1.2022672	1.2891245	0.9076735	1.0143822	1.1606097	0.9028798	1.3421004	1.2997395	0.8302399	0.4150339	0.8239205	0.8151171	1.4590472	1.2482497
N-hydroxy-2-acetylaminofluorene	0.7181792	0.8782097	0.971423	1.0283145	1.0129206	0.853038	0.6889189	1.1277404	0.6457841	0.7961873	0.6789879	0.8782146	0.8216351	0.7890428
sulfolipase (ST1C1)	1.3182944	1.0344393	1.1648662	1.1730943	1.3319616	1.2326119	1.2749877	1.3853215	1.8486641	1.6701841	1.7824253	0.8301882	1.1922711	0.9456514
Insulin-like growth factor binding protein 3	1.1122724	0.937468	1.0152212	1.0725693	0.9895595	1.1608726	0.9602186	1.0888556	0.9264851	0.895024	0.8068856	0.8517385	0.7449929	0.6710215
ID-1	0.7540472	0.7568971	0.9046503	0.9635615	0.9888121	0.8877909	1.3820823	1.0471776	0.9633551	1.062181	0.9264293	1.3496708	1.3387678	1.2842237
Hepatic lipase	0.5865308	0.6182911	0.9055429	0.971004	0.8492038	0.9953846	0.7546095	0.7931681	0.6323757	0.303677	0.5865135	0.965135	0.7503839	0.9322158
Heme oxygenase	0.8929768	0.654018	0.8055482	0.8893434	0.798218	1.1525307	0.9958195	0.7271075	2.5563145	2.7468493	2.0662995	0.88527	1.0452955	0.8398532
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.8099765	0.8839169	1.0333087	1.048104	1.0332998	0.8911779	0.7344196	1.1271809	0.7316783	0.8594266	0.8097224	0.7779241	0.8560177	0.7736253
Epidermal growth factor	1.0434536	0.9954557	0.9539185	0.931231	0.9462681	0.9375359	0.9288916	0.8895518	1.757575	0.9382253	1.7290249	0.7302508	0.7216877	0.7894197
c-myc	1.0549672	0.9236338	1.0265619	1.0435165	0.9481313	1.1485606	0.8667781	0.9682433	1.0447882	0.9881479	1.5931368	1.427438	1.202431	1.4924064
Carbonic anhydrase III	0.5428243	0.8057871	0.9288065	0.7199903	0.9923616	0.630214	0.3300888	1.0788672	0.217058	0.2535324	0.4804737	0.8490672	1.3927325	1.4924064
Beta-actin	0.7455059	0.727115	1.261218	1.1297102	1.3523881	1.4099844	1.2310396	1.0602597	1.8834116	1.61845	1.6085961	1.7933574	1.2144873	1.0650387
Bax (alpha)	1.2154232	1.1708492	0.9168659	0.9538658	1.0041071	1.0121685	1.0483627	1.0530555	0.8581607	1.7328737	0.7996875	2.721402	1.2327665	1.1441972
Alpha 1 - inhibitor III	0.5299165	0.773895	1.0791608	0.8547216	1.150712	1.821705	1.0094987	0.9526491	0.3720188	0.31342	0.5830388	0.8074134	0.8753479	0.9712917
60S ribosomal protein L6	0.854068	0.8010806	1.0183214	1.0750082	1.0313096	1.0486721	1.30762	1.136356	1.4519244	1.6176236	1.3338286	0.8550111	0.7621086	0.8744972
Phase-1 RCT-117	1.3554323	1.4340345	1.2542573	1.2450678	0.9199028	0.5740656	1.3832319	1.3353597	1.0200652	0.8605284	0.877008	1.199213	0.7621086	0.8001049
Phase-1 RCT-102	1.2307757	0.9138232	0.967008	0.7442003	0.9762455	0.5647314	0.939251	0.4090405	0.3899821	0.3779532	0.8310866	1.0672108	0.7750828	0.7750828
3-hydroxyisobutyrate dehydrogenase	0.854547	0.9535527	0.982129	0.9835608	0.9837244	0.9358741	0.958917	1.0014801	0.7897868	0.783957	0.8706753	0.5160866	0.9818588	1.0300514
ATPase inhibitor (rat mitochondrial IF1 protein)	0.8521345	0.7769733	0.9893217	0.9580447	0.7947021	0.9280893	0.9236015	0.9580187	0.9986082	0.9313905	0.9503158	0.343275	0.3913808	0.3944967
Alpha-2-macroglobulin	0.5158899	0.8243105	1.2023191	0.9476277	1.5486226	1.2187929	1.3474845	1.087621	0.6870446	1.3769013	1.0140972	0.7187368	1.0327418	1.5593811
Phase-1 RCT-137	0.7058342	0.8353945	0.9997141	0.986773	0.99971365	0.9897108	0.9466451	1.048999	0.9623334	0.9924816	0.7138952	0.6658886	0.8337359	0.8337359
Phase-1 RCT-252	1.0286615	0.9365324	1.1167922	1.1234202	1.0011852	0.8823267	0.957439	1.0347347	0.7596645	0.6542231	0.7379984	0.5230569	0.8859573	0.8442218
Phase-1 RCT-65	1.3204659	1.3860147	1.0607859	1.039921	1.916884	1.2472743	1.0737641	0.9905066	1.1218907	1.0545754	0.8887072	2.4295921	1.3433158	1.2759155
Liver fatty acid binding protein	0.9839757	0.940463	1.0134888	0.9971262	1.0103829	1.2906444	1.151644	0.9860848	0.820356	0.8379638	0.4066504	0.4066504	0.4787793	0.4676111
Carbamyl phosphate synthetase I	1.0720181	0.9905011	1.438106	1.1401561	1.0332878	1.0017059	0.843414	1.102737	0.7370341	0.6392055	0.4199837	0.4199837	0.9509898	0.8613867
c-Jun	1.8492165	1.2417426	0.9742847	1.0464569	0.8643965	1.6226351	1.0218707	1.0708773	1.046685	0.7730398	1.0246736	1.574772	1.7223917	0.9238291
Transferrin	0.7406973	0.763825	0.8977307	0.8361628	0.9019695	1.134158	0.604907	0.7095402	0.4238188	0.4009466	0.5395997	0.4027802	0.7037687	0.7350139
Aldehyde B1 aldehyde reductase	0.6124246	0.6165556	0.9851978	0.9455223	1.1378884	1.0271837	0.8807532	1.045576	0.906312	0.5042872	0.9106605	0.490316	0.538012	0.7803657
Phase-1 RCT-15	1.0957676	1.2144754	0.980016	1.0338566	1.18659	1.245339	0.9508984	1.0510282	0.8141824	0.7901816	0.830665	2.080643	1.3731403	1.5135815
Insulin-like growth factor I	1.1445698	1.0134277	0.9349118	0.8838595	0.885825	1.1993126	0.9160149	0.9997387	0.8631354	0.7161098	0.7595658	0.4781644	0.7156452	0.6509666
Sodium/bile acid cotransporter	0.787307	0.892918	1.053679	0.9446503	1.1681696	0.9514156	1.31466	1.0005252	0.5635178	0.5625144	0.5683583	0.5232641	0.5911949	0.6085194
Organic cation transporter 3	0.9131043	0.8597093	1.0306678	0.997267	1.037839	1.0350468	1.2607527	1.1350403	1.380597	1.3816513	1.3267756	0.890412	0.683478	0.8021241
Gadd153	1.0654631	1.1022518	0.901045	0.9596821	0.9808468	0.9757422	1.0279391	0.9810714	1.2014398	2.4945552	1.0471916	1.7231433	1.6605246	1.2284554
Phase-1 RCT-109	0.9839159	1.090196	1.03229	1.1243888	1.0318047	1.1825358	1.3653173	1.1405642	2.135118	1.3631604	1.946111	0.5411397	0.6538152	0.4683566
Phase-1 RCT-88	1.0496689	0.9948443	0.9534522	1.0048211	0.7230025	0.7174607	0.8775012	0.9042643	0.4220288	0.698338	0.4701625	1.1194781	0.8348894	1.0923152
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.8789052	0.9779585	1.0707263	0.9654753	1.019171	0.9614476	1.2507049	1.0951017	1.1675658	1.1193281	1.1265495	1.2047318	0.8398779	0.9552209
Glucose-regulated protein 78	1.2133586	1.2478733	1.1447569	0.9169821	0.8785071	1.0647807	1.0180637	1.1447374	2.4369361	1.6220107	1.118503	0.2808427	0.7070881	0.6596328
Ribosomal protein L19A	0.9151192	1.057748	0.986749	1.0644746	1.0590075	1.2076028	1.4087931	1.2567679	1.5797532	1.4674202	1.3034058	0.4864945	0.5974738	0.3598808
Monocyte chemotactic protein receptor (CCR2)	1.0808592	0.979242	0.9790533	1.0102938	0.998282	0.9959306	1.1578903	1.0789024	1.3022177	1.0131018	1.2141243	1.447535	0.8227849	0.821635
Fas antigen	0.9132685	0.9702953	1.117684	1.0470116	1.085591	1.1050112	1.125913	1.101309	1.5074538	1.5125973	1.3790355	1.3580159	0.9419769	0.9181348
Calpain I heavy chain	1.162256	1.0533704	1.0363821	1.1357881	1.05581	0.9856164	1.0846148	1.8050145	1.9519485	1.6177971	1.5929023	1.3772173	1.3257442	1.3257442
Uncoupling protein 2	0.8046101	0.9402848	1.031474	0.9025039	1.027866	1.0599056	1.239186	1.6147901	2.5298028	1.5595127	1.3226427	0.7812367	0.5595722	0.5595722

Phase-1 RCT-168	1.2192364	0.9874058	1.0980715	0.8982461	0.9527884	0.9386924	0.9485305	0.8554356	1.0753123	1.2393059	1.0547968	0.6622268	0.9082258	0.8524869
Phase-1 RCT-154	0.9349719	1.0264267	1.047096	1.0404276	0.9925371	1.0093783	1.045577	1.00623	1.4046311	1.2853568	1.3672818	1.1864358	1.0230782	0.8901593
Superoxide dismutase Mn	1.055162	1.153363	1.0530064	1.0815418	1.09284	1.1650929	1.3549029	1.091882	2.3164665	2.6711456	2.7240853	0.7550042	1.2154483	0.8907744
Phase-1 RCT-214	1.1835552	1.0884516	0.9973067	0.7897811	0.7506299	0.85414	1.293367	0.8909238	1.0604389	1.160017	0.9678867	1.160017	0.9678867	1.1657137
Phase-1 RCT-225	2.0530102	1.4692731	0.8041396	1.2869481	1.2847189	1.2866693	0.5775507	1.1927702	0.9649081	0.875585	0.906066	1.6782684	0.8833208	0.8486914
Phase-1 RCT-181	1.2872792	1.2258081	1.0903194	1.0777168	0.9549649	0.9813189	1.3537472	1.1235317	0.7811664	0.8986276	0.8017877	0.7331442	0.9260154	1.0034314
Nucleoside diphosphate kinase beta isoform	0.900477	0.9062963	1.0158951	0.9378303	0.9448464	0.9065008	1.1630361	1.0625396	1.526713	1.765416	1.5130631	0.8383544	0.9545265	1.1035591
Extracellular-signal-regulated kinase 1	1.0114549	1.1373141	0.9784042	0.9851526	1.0303891	0.7088653	1.0422137	1.1034206	0.8044817	0.8421052	1.999092	1.5726149	1.4152888	1.1035591
Ribosomal protein L6	0.9349878	0.8170229	1.0798739	1.0970958	1.0638716	1.1433125	1.2816285	1.1707282	1.4209286	1.587876	1.3318664	0.5529717	0.6474777	0.8034105
Aldehyde dehydrogenase, microsomal	0.987548	0.8360473	1.197637	1.0178883	1.0551094	1.090252	0.9592752	0.9837845	0.7861101	0.8858515	0.8292897	1.0506895	0.9344786	0.8486914
p53	0.7883779	0.9708037	0.9427902	0.9411774	0.9704472	1.0204778	0.9648071	1.0112285	1.1640448	1.261226	1.1170584	0.8318278	0.9424017	0.9529858
Phase-1 RCT-239	1.2601181	1.0390319	1.0439553	1.1938931	1.2281624	1.1204593	0.859755	1.172154	0.7300873	0.9108157	0.7443268	1.5721025	1.4480371	1.1696519
Macrophage inflammatory protein-2 alpha	1.2822283	1.0896603	0.9529997	0.8827473	1.0371416	0.9972296	1.0856035	1.1011482	0.9760901	0.9733616	0.8259647	1.0661966	1.5876671	1.235048
IgE binding protein	1.0562475	1.03294	1.0480275	1.0650888	1.0620608	1.1066718	1.1449454	1.0527028	2.2124466	3.1090653	2.2805612	0.8720954	1.0250872	0.8357931
Phase-1 RCT-205	1.0418348	0.9223324	0.9740601	0.9603548	0.906594	0.9325743	0.885315	0.8851688	1.0622364	1.027117	1.0319928	1.0756358	1.0781504	1.0305198
Melanoma-associated antigen ME491	0.8591662	0.8684787	0.9450409	0.9030111	1.026077	0.9494096	1.1832627	1.3207452	1.9095588	1.5208948	1.459777	1.472059	1.245471	1.2441281
Phase-1 RCT-242	1.1349999	1.0035763	1.0098862	1.0796684	1.0523583	1.1367192	0.9255114	0.9117706	0.9335592	0.9491	1.0288097	1.3834871	1.1232831	1.1423848
Enolase alpha	0.6003254	0.6213133	0.9080578	1.034633	0.9780739	1.0650513	1.3101355	1.0946906	2.554339	1.2153989	2.1471772	0.3956447	0.5454978	0.9222598
Thyrosin beta-10	0.7899596	0.9146676	1.086759	1.0376713	0.9657899	1.0929132	1.3850416	1.1612668	1.8280458	2.326408	1.7185195	0.9093212	0.6490445	0.5560981
Carbonyl reductase	0.9111455	0.910445	0.9537863	0.9462809	1.0517476	1.0217648	0.8435281	0.9682948	0.8375178	1.5935396	0.980547	1.0232598	0.9331037	1.1904187
MAP kinase kinase	0.8955374	1.080439	0.9830242	0.9676811	0.9803597	0.866951	0.9793747	0.9269153	1.7759193	1.1930655	0.8513634	1.9037708	1.2623004	1.1803032
Phase-1 RCT-162	1.0274882	1.0404625	1.0155525	1.0220867	0.9851858	1.043331	1.2459162	1.0679582	1.0643365	1.0760273	1.0289019	0.831462	0.8651258	0.9150387
Phase-1 RCT-72	1.199637	1.0991771	0.9887163	1.1000471	1.0170416	1.0813669	0.9637225	0.9883305	1.1433805	0.7346202	1.1214807	0.8569255	1.3034598	1.0824208
Ribosomal protein S8	0.8131328	0.8200875	1.0518684	1.0469987	1.0477752	1.1236109	1.1818344	1.6359085	1.59745	1.4606278	0.5128742	0.6743087	0.6759723	0.8758723
Proliferating cell nuclear antigen gene	1.0222557	0.9913463	0.9087323	0.9201128	0.9640177	0.9312899	0.9139877	0.9187895	0.8477805	1.3068482	0.9579663	0.8745524	1.4996195	1.4112503
Phase-1 RCT-192	0.9199516	1.0867399	0.9808838	0.9973732	0.9433329	0.923407	1.3487915	1.0871835	1.7667748	1.3558887	1.3810981	0.8176519	0.8787565	0.9498519
IkB-a	0.753287	0.7720562	0.9401116	1.0043068	0.9477188	1.0527065	1.1220281	1.3058561	1.3024854	1.1695183	0.5369004	0.8379114	1.11295	1.11295
Endogenous retroviral sequence, 5' and 3' LTR	1.0279377	1.1070689	0.9789911	1.1128079	1.1103172	0.8919403	0.5302711	1.2154467	1.4978466	0.7858484	0.9822971	1.0718268	1.2168823	0.8888488
Phase-1 RCT-37	1.0713532	0.9676918	1.0680957	1.0543905	1.0286888	1.0892798	1.2211272	1.1047446	1.2468475	1.2070819	1.1970166	0.9007371	0.9732534	1.0012033
Matrix metalloproteinase-1	1.0258789	0.9978149	1.046586	1.0348411	1.1515146	1.3280245	1.2292387	1.1950434	1.5175757	1.1382587	0.6960277	0.8415019	0.7343459	1.2557242
Cyclin G	1.1438332	1.1285464	0.985998	1.0409845	1.0224708	1.0816298	0.9351869	1.3843862	1.4101044	0.8950846	1.5431851	1.2557242	1.2557242	1.2557242
DNA polymerase beta	0.8993082	0.9685736	1.0349258	0.9623957	0.9887246	0.9940012	1.2576497	1.1707767	1.3880438	0.9921571	1.3894282	0.6469046	0.7754713	0.9254215
Phase-1 RCT-127	0.9060416	0.9184349	1.0482055	1.076837	0.9510025	0.8766478	1.1084449	1.0850483	1.1230849	0.9904846	1.1741145	0.9519019	1.0860287	0.9499342
Multidrug resistant protein-2	0.9028021	0.9808773	0.9169236	0.8775058	1.1235701	1.0640013	1.3016158	1.1212188	0.8565629	1.5932912	0.8610166	1.1867408	1.8033012	0.9915083
Ribosomal protein S9	0.8269926	0.8066605	1.0499236	0.9386887	0.9365688	0.9622657	1.325914	1.1353934	0.9818822	1.6035484	1.1039951	1.3778001	0.8876553	1.0526292
Phase-1 RCT-12	1.1987983	1.2095588	0.9499573	0.9257831	1.0229154	1.104018	0.9025739	1.4163115	1.0893043	1.2443941	1.5037812	1.2523003	1.2832004	1.2832004
Beta-tubulin, class I	1.3050863	1.3948457	1.0409039	1.1434577	0.9384645	1.2530004	1.5082289	1.1410807	1.7557983	1.5832543	1.4513657	1.9022528	1.4475887	1.4667059
Argininosuccinate lyase	1.1678921	1.0434597	1.230507	1.0986362	1.2655351	1.2319297	1.195608	1.187153	0.7539994	1.0068387	0.7622004	1.0882454	1.0053443	0.9085006
Elongation factor-1 alpha	0.7997279	0.7619379	1.002233	0.9746004	1.1289371	1.0316497	1.2954711	1.0704509	0.9865161	1.1032604	0.9363217	0.7147028	1.0007594	0.9201819
Phase-1 RCT-55	1.2269814	1.058236	1.0730972	1.0626581	1.0714884	1.2093532	1.0887252	1.0174932	1.1856986	0.7311267	0.8544341	1.3760422	1.0047342	1.0047342
Macrophage inflammatory protein-1 alpha	1.0088532	1.1471485	1.0844583	1.018292	0.9844701	0.9172412	1.048071	1.0275595	1.050494	2.043859	1.1299301	2.2922368	1.1376307	1.1153075
c-Haas	1.1523035	1.0517048	1.0857929	1.0366333	1.07764	0.9559768	1.3595971	1.0962723	0.924342	1.1197183	1.0524377	2.1570125	1.028286	0.9479259
Multidrug resistant protein-1	0.8088215	0.8465738	0.8036657	1.0856688	0.8326201	0.9753419	1.1417308	1.0683627	0.9185286	1.424878	0.8177196	1.2385445	1.5903449	1.3289587
T-cell cyclophilin	0.7850029	0.8296217	0.949263	0.9047658	0.9493371	0.9501134	1.1976178	1.0917401	1.4455498	1.3087282	1.3142674	0.4395487	0.7107885	0.9379055
Phase-1 RCT-185	0.8442238	0.8708094	0.8933179	0.9412158	0.9763824	0.9215216	0.9643371	0.9643371	0.9643371	0.9643371	0.9643371	0.9643371	0.9643371	0.9643371
25-DX	0.8198313	0.8929417	1.0839146	0.9685113	1.0123106	1.1651486	1.0122457	1.194328	0.6316728	1.1202568	0.520185	0.6597415	0.6251457	0.6251457
Ref-1	1.2717825	1.1691545	1.0673232	1.0040103	1.2007607	1.3111258	1.0176689	1.155659	0.9882155	1.3489524	0.9849477	0.9757319	0.7613632	0.7613632
Apolipoprotein CII	0.7818864	0.7847065	1.0563716	0.967483	1.1154201	1.01234	0.8177691	0.9125352	0.9999999	0.8101848	1.178928	0.9145267	1.022237	1.022237

NADPH quinone oxidoreductase-1 (DT-diaphorase) Pyruvate kinase, muscle	1.3176068	0.9772558	1.1348553	0.9899554	1.2668004	1.2082883	1.5449922	1.0267385	0.8676032	1.4956099	1.4191957	1.5116162	0.9379379	0.6922599
	1.0502899	1.445187	1.0758014	1.1421782	0.9761035	1.0551362	1.1523137	1.1012504	0.8956803	0.6958787	1.095069	1.3910917	1.1413805	1.0162992
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Table 35. Expression Data for 24 Hour Timepoint (1)

Phase-1 RCT-191	0.8811861	1.0745221	0.8401624	1.0542101	1.0555668	0.9455711	1.2281837	1.5182964	1.2814625	1.4284293	1.5989642	1.3847133	0.8313621	0.7151828
Phase-1 RCT-189	1.0288285	1.2210543	1.2886024	0.9871813	0.8433522	0.9631251	0.9670175	0.9605923	0.9742981	0.8764377	0.7540069	0.6800555	0.7720805	0.605258
Phase-1 RCT-179	1.0474746	1.1483874	0.8484138	0.7907211	0.8049391	1.0659615	1.0935951	0.8634123	0.9703842	0.98934	1.1533886	0.10756105	0.8977249	0.8341951
Phase-1 RCT-152	1.0821545	1.0314994	0.9518418	1.4002041	1.3075821	1.4334339	0.9807447	1.0910873	1.0477897	1.1113588	1.1095293	1.2457852	0.7359347	0.7084752
Phase-1 RCT-123	0.997732	1.0705374	0.9051793	0.6986835	0.857298	0.8840246	0.9725327	0.870975	0.9541268	0.9342406	0.9371893	1.042272	1.0197505	1.0697129
Paraoxonase 1	1.3292759	1.2379159	1.2734405	1.1374274	1.1692327	0.8875405	1.000651	0.7913593	0.8649714	0.7219137	0.8315134	0.9670215	0.4981621	0.4752466
Organic anion transporter 3	0.9998856	0.5754557	0.7021413	0.72121879	0.8458272	1.1219102	1.2482643	1.1317321	1.2512108	1.1947898	1.0530763	1.0578291	1.2696171	
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	1.1226163	0.9798814	0.9148696	0.5723575	1.0113006	0.880556	1.0506246	0.9898952	0.809077	0.7492172	0.7854482	0.8182194	0.5527215	0.5091497
Integrin beta1	0.9371607	0.9087053	0.8366258	0.9471765	0.923899	1.0868127	0.9471425	1.2715927	1.0917827	1.2896156	1.3701577	1.3345927	1.120305	1.2398175
Insulin-like growth factor binding protein 3	1.1007221	0.9121733	1.0930117	1.2661333	0.9789984	1.2083311	0.9638365	0.8871935	0.9865392	0.7183796	0.6158185	0.8746586	0.8806644	0.8119202
ID-1	0.8091428	0.8462172	0.8398953	1.0058473	1.0058315	0.8770729	0.8844202	0.8682716	1.0079348	1.0151496	0.8088281	1.0150498	1.1567293	1.2308392
Hepatic lipase	0.9032075	1.1485763	1.11714	0.7437439	0.8021107	0.5170425	1.1308197	0.6987933	0.9047116	0.7302419	1.207555	0.6736396	0.5441151	0.4993025
Heme oxygenase	1.1155461	0.9021917	1.315695	1.5988879	1.8892936	2.8961155	1.0087487	0.9438345	0.831532	0.7676747	0.755369	0.8648719	1.4980029	1.9078307
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	1.0200003	0.8633021	0.8475984	0.4989112	1.0088784	0.9443255	1.0007473	1.0175515	0.7805172	0.8517739	0.8289258	0.9012228	0.8046285	0.569324
Epidermal growth factor	0.794392	0.7347957	0.9506928	0.9656344	0.9671793	0.8914056	0.9036452	0.8760634	0.98114	1.0033023	1.0922527	1.1438208	0.7578396	0.6975468
c-myc	0.7665244	0.7922169	0.9845398	1.0128802	0.9801688	1.0198549	0.8047984	1.2630084	0.7701345	1.058499	0.7599509	0.7591396	1.2349048	1.1414587
Carbonic anhydrase III	1.31315	1.3088467	1.2967981	0.2896877	1.5152373	0.7601934	1.1920874	0.9769893	0.6170292	1.5019727	0.6861851	0.8602003	2.0685604	2.6036827
Beta-actin	0.9065251	1.4832731	0.8780714	1.1042328	0.8703842	1.0226983	0.7751721	1.3100652	1.0077792	1.2239358	1.2457637	1.1447318	1.3180724	1.3476938
Bax (alpha)	0.8543482	0.4823131	0.8780714	1.1074398	1.1316482	1.028579	0.9488975	1.2040212	1.0290888	1.0579376	1.0812734	1.1220024	1.1170721	1.146199
Alpha 1 - inhibitor III	0.7824218	1.3594509	1.541396	1.0783612	0.7721893	0.758899	0.6588313	0.5583438	0.6149803	0.5855542	0.4904848	0.5621914	0.5075451	0.4307326
60S ribosomal protein L6	1.0763756	1.1603794	1.3051459	1.4783042	1.548692	1.7556303	1.3516392	1.2023529	1.2516034	1.30657	1.4253544	0.8080699	0.8097128	
Phase-1 RCT-117	1.8276275	1.5523903	1.4958478	1.7399883	1.7329228	1.1531007	1.3582462	0.9438115	0.70393	0.8476138	1.1803007	0.8656678	0.9958698	1.4180305
Phase-1 RCT-102	0.8447	0.6427715	0.7609428	0.6539396	0.70161397	0.8732528	0.8239375	0.6547211	0.7132512	0.8732684	0.5207973	1.0955093	0.9876724	
3-hydroxyisobutyrate dehydrogenase	1.1284628	1.1797142	1.3591552	1.2215188	1.2890364	1.0882375	1.1856974	1.0662512	1.006265	0.9364317	1.0715985	0.986837	0.9142559	0.9803374
ATPase inhibitor (rat mitochondrial IF1 protein)	0.9839291	0.9285457	1.1398357	0.7734738	0.7437181	1.1355599	0.9077637	0.6194758	0.7189694	0.6847957	0.7077478	0.6801139	0.518629	0.4781059
Alpha-2-macroglobulin	0.7832562	0.7166321	0.9103125	0.6992743	0.7524802	0.7891514	0.8469988	0.7667816	0.9845098	0.9112825	0.8592977	0.9766259	0.5648875	0.4789511
Phase-1 RCT-137	1.1094037	1.2695209	1.4849468	1.2344115	0.9999999	0.9990186	1.306499	0.7925805	1.1141845	0.8439035	0.9250865	0.88174	0.8276316	0.423915
Phase-1 RCT-252	0.8311172	1.430933	1.493369	1.0309699	0.99501	0.7363722	1.0577832	0.9393328	1.1537405	0.8262207	0.7719606	0.7404517	0.8209646	0.7562221
Phase-1 RCT-65	0.9367739	0.953924	0.9896985	1.1371061	0.9508738	1.0763657	0.9634927	1.2357298	1.051158	1.1214749	1.1223944	1.09479	1.084753	1.1693969
Liver fatty acid binding protein	1.2681334	1.0337187	1.065481	1.4900931	1.0102762	1.2340068	1.2483753	1.1086895	1.4777777	0.8038268	0.79393221	0.8984311	0.6904743	0.5493986
Carbamyl phosphate synthetase I	0.8364756	1.4792482	1.558141	1.0632536	1.1016436	0.6948665	0.9366696	0.7852237	0.8920481	0.8575127	0.7786677	0.7691843	0.8997234	0.8454
c-Jun	0.8424038	0.6543116	1.001915	0.7951392	0.7339309	0.703728	0.8303393	0.8724486	0.8417327	0.6641419	0.6214476	0.6870558	1.1399523	1.3843127
Transferrin	1.0163106	0.9509039	1.3015764	1.095263	0.8814501	0.8234068	0.8017502	0.5790386	0.5527899	0.5254505	0.5896274	0.4630527	0.4873097	
Allosteric B1 aldehyde reductase	1.2886465	1.2152185	1.8831855	0.768345	0.8343053	3.2279685	1.0769213	1.3820262	0.8232412	1.4116328	1.7273709	1.4401507	0.655803	0.8283816
Phase-1 RCT-15	1.200953	1.2619003	1.3040715	1.2635123	1.1249137	1.0329844	1.2007615	1.427016	1.5887231	1.0166945	1.0001007	1.0269015	3.5533648	2.982262
Insulin-like growth factor 1	1.1987956	1.1169683	1.0069631	1.2579076	0.9074423	1.2722701	0.8484668	0.7484797	0.9326515	1.6194117	2.8070911	2.8062227	2.7565466	0.7943858
Sodium/bile acid cotransporter	1.4807682	1.19271	1.4264773	1.2580571	1.5503533	1.5445105	1.3746221	1.6056002	1.6194117	2.8070911	2.8062227	2.7565466	0.6926259	0.7428868
Organic cation transporter 3	1.0286256	1.0891287	1.2533561	1.426678	1.5448063	1.7307856	1.1140827	1.2764859	1.1839733	1.2112213	1.2770066	1.3597053	0.9117112	0.837452
Gard153	0.8167011	0.7948633	0.988104	0.9995397	1.0396845	0.9757027	0.8928386	1.0129519	1.0114967	1.0078114	0.9890363	0.9738436	1.0668754	1.0849282
Phase-1 RCT-109	0.8663757	1.0233607	1.0459566	1.1912588	1.2338687	1.3265096	1.086216	1.0635175	1.181331	1.0727324	1.0347741	1.2090583	0.8948181	0.9983016
Phase-1 RCT-88	1.1496282	1.57613	1.1861619	1.1855584	1.07521	1.038438	0.622679	0.9629591	0.916104	1.1676247	0.8951314	0.8890916	1.2805486	2.1003003
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.2427821	1.2129275	1.407106	1.2454127	1.347129	1.3363819	1.3152463	1.2192388	1.207253	1.2024257	1.253254	1.2391468	0.776266	0.6535188
Glucose-regulated protein 78	0.9707059	1.0328547	1.1868162	1.6645918	1.081907	1.4282978	1.2076089	1.2606441	1.053652	1.678739	1.6884179	1.4870768	0.8506348	0.7386286
Ribosomal protein L13A	0.7977811	0.9529903	1.0370792	1.163307	1.3045912	1.3455061	1.0750833	1.1008143	1.1759198	1.2086638	1.1272985	1.2892722	1.0524868	1.0236628
Monocyte chemoattractant protein receptor (CCR2)	0.6199161	0.6689797	0.7380908	0.8888436	0.9031825	1.1273327	1.0818825	1.1340827	1.1778555	1.0336486	1.0859468	1.0710775	1.3001536	1.4987804
Fas antigen	0.9824907	1.0709266	0.8516111	1.0413183	0.9383588	1.1837742	0.9383588	1.2256192	1.2256192	1.3306442	1.4042194	1.3285125	1.2004303	1.2042142
Calpain I heavy chain	1.0851088	0.884501	0.9650977	1.228202	1.4323419	1.757792	1.0267892	1.1010026	1.1936888	1.1936888	1.0631132	1.2467892	1.093376	1.2321887
Uncoupling protein 2	0.8721341	0.897956	0.8748241	0.9448891	1.1055139	1.3031064	0.9370846	1.0282071	0.9911717	1.0148361	0.8976556	1.1502259	0.963785	0.841632

Phase-1 RCT-188	0.9106722	1.0111204	1.2283381	1.2343104	1.1066872	1.0725055	1.2174448	1.1077245	1.3561	1.0874873	1.1549605	1.1103178	0.8115332	0.7780987
Phase-1 RCT-189	0.9072797	0.8653848	0.9272546	0.9818855	1.1567302	1.2157241	1.1096146	1.0920738	1.1250215	1.3025605	1.1715895	0.9325646	1.0604428	1.006637
Superoxide dismutase Mn	1.2815182	1.3424653	1.1920233	1.6315763	1.7598872	1.4134847	1.1765287	1.2513832	1.0321608	1.2658876	1.5203067	1.4159875	1.0924224	1.1141188
Phase-1 RCT-214	1.0745115	1.0002277	0.8522752	0.7788431	1.0484152	1.2374424	0.850813	1.0209763	0.9342451	1.0745532	1.0096425	0.9856276	0.9856276	0.9856276
Phase-1 RCT-225	0.9843891	1.1548651	0.6949588	0.8526075	0.5611728	2.0515995	1.1320049	1.3363762	0.9059564	1.6865237	0.8131781	0.9586674	0.8126211	1
Phase-1 RCT-181	1.0114653	1.2563285	1.1405444	1.3653687	1.0797879	0.9294831	1.1221112	0.9651248	0.9555553	1.0660114	1.0416886	0.9888852	1.1332326	1.5037683
Nucleoside diphosphate kinase beta isoform	0.9072705	0.6807867	0.749705	0.7933139	0.9347583	1.2246327	1.0655922	1.2703601	1.2078401	1.3596091	1.2880848	1.3621202	1.0997892	1.1869156
Extracellular-signal-regulated kinase 1 (Ribosomal protein L6)	1.3172253	1.3347229	1.3157899	1.4292876	1.2577963	0.8271597	1.0318190	1.1310714	0.7365924	1.5002258	1.3735502	1.3735502	1.8045823	1.8045823
Aldehyde dehydrogenase, microsomal	1.0496188	1.1171387	1.18198	1.4039898	1.2464587	1.6792861	1.1006337	1.1304826	0.995245	1.1591944	1.224765	1.309189	1.3581743	1.1811236
p53	1.1562272	1.1962495	1.2392752	1.5086234	1.3298086	1.2372084	1.1315806	1.0342352	1.0867573	1.1255562	1.047859	1.1007296	0.9445828	0.9445828
Phase-1 RCT-239	1.0663928	0.9859852	1.0284336	1.0344322	1.0596927	0.9446959	1.0366628	1.1408015	1.1233326	1.0489068	1.111171	0.9729443	1.0674282	1.1964879
Macrophage inflammatory protein-2 alpha	0.9199755	0.8521722	0.7909793	0.8795924	0.854141	0.7377143	0.7560803	0.9384927	0.8651457	0.8033848	0.5861619	0.594977	1.2344102	1.3399453
IgE binding protein	0.976371	0.8416821	0.8784871	1.0076222	1.2191896	1.0553563	1.0797799	1.1880233	1.0085522	1.0933721	1.1200843	1.1774955	1.1319822	1.3471737
Phase-1 RCT-205	0.9360583	0.8334122	0.8814431	1	1.5603224	1.9054799	0.9299123	0.8924858	0.9113653	0.9373995	0.8979887	1.0133716	1.0982697	1.1659347
Melanoma-associated antigen ME491	1.0607845	0.8826919	1.305828	0.8572113	1.2369872	1.3903663	1.1284412	0.9924978	1.1180656	1.0891637	0.9854227	1.0451078	0.9841422	1.0709833
Phase-1 RCT-242	0.8579823	0.7470584	0.7808959	0.7489194	0.8338187	0.7590649	0.8921382	0.9504033	0.9136221	0.9854527	0.8678555	0.8933881	1.1814326	1.2135148
Enolase alpha	1.0306414	1.2615392	1.1620915	1.3161278	1.1584475	1.4891477	1.023046	1.2378715	0.9827289	1.1207004	1.1485008	0.7100584	0.7241104	0.7241104
Thymosin beta-10	0.8620089	0.9149761	1.0111797	1.1548972	1.3219199	1.3810022	1.0041044	1.0950592	1.065707	1.0604261	0.9766281	1.2117712	0.7194878	0.7558931
Cofilin	1.3170718	1.3227862	1.3518732	1.3077913	1.2432821	1.2494075	0.901139	0.8286225	0.9116566	0.9113568	0.8536531	0.862679	1.074618	0.9859593
Carbonyl reductase	0.9139171	0.8622283	1.0062318	1.0359313	0.9557377	0.9855197	0.9584688	1.1921347	0.9159769	1.1249353	0.96204	1.0129995	1.0348384	1.0348384
MAP kinase kinase	0.9566995	0.758714	1.0216486	0.8763675	0.7860438	1.0873249	1.0513394	1.1329185	1.1845737	1.0019684	1.0839782	1.108451	1.0230565	1.1641792
Phase-1 RCT-162	1.185978	1.1341732	1.2258478	1.3873429	1.6265342	1.5402277	1.1495728	1.1340265	1.3327438	1.2280895	1.1899374	1.313342	0.7764075	0.7353587
Phase-1 RCT-72	0.8173763	0.7237371	0.7983726	0.8268669	0.8570422	0.9063326	1.4202777	1.495728	1.3917106	1.3799535	0.9030739	0.9622839	1.1071668	1.1823598
Ribosomal protein S8	1.1599028	1.0838451	1.2599728	1.4321334	1.6455462	1.3200043	1.411006	1.3956771	1.3087173	1.2989768	1.449721	0.7171001	0.7171001	0.7171001
Proliferating cell nuclear antigen gene	0.8316098	0.8405975	0.9673021	0.9317301	0.9168872	1.0814325	0.9847063	1.3102598	0.9114851	1.0072708	0.9414672	1.1079887	0.8903063	0.9203008
Phase-1 RCT-192	0.9583828	0.8674195	0.8269153	0.9937651	1.1737217	1.5941599	1.0062605	0.9811471	0.9229795	0.9348046	1.0713737	0.9487997	0.8693588	0.9295178
IkB-a	1.0357397	1.2159499	1.1744486	1.1378547	1.1198332	1.2841346	1.0903168	0.959595	1.0235202	1.032907	1.0958737	0.9327695	0.7684462	0.7684462
Endogenous retroviral sequence, 5' and 3' LTR	1.0623314	0.9016954	0.5655235	0.628648	0.6663877	1.8134204	0.8051625	0.9944769	0.7515338	1.2096317	0.7010698	0.7797112	1.1988359	1.1030474
Phase-1 RCT-37	1.0917883	1.0430442	1.087758	1.1479757	1.2314785	1.2371916	1.0943716	1.1314862	1.0823208	1.1007766	1.1375151	1.2561727	1.2545713	1.2485778
Matrix metalloproteinase-1	1.1620388	1.1429127	1.059155	1.3702477	1.5535645	1.5094713	1.1713862	1.1644468	1.2449391	1.1935964	1.3547534	1.5810665	1.8968101	1.8968101
Cyclin G	0.8915258	0.8468568	0.799477	0.9966421	1.1879214	1.0459999	0.9731049	1.0887344	1	1.0018926	1.0658569	1.0789777	1.0604428	1.1785504
DNA polymerase beta	1.1277554	1.0524578	1.1774316	1.2046107	1.2798359	1.4323899	1.0927327	1.0562412	1.0337721	1.0456877	1.107049	1.1580282	0.8488339	0.5275079
Phase-1 RCT-127	0.9080498	0.9510114	0.9019446	0.8796764	0.9779105	0.8939804	1.0378404	0.9212771	0.7588857	0.8580447	1.0451832	0.8784117	0.9388483	1.1749413
Multidrug resistant protein-2	1.1006029	1.0984111	0.8294478	1.4473153	1.4898288	1.0388944	0.9187673	1.6348426	1.1275113	1.3007311	1.5555578	1.4049084	1.2861583	1.334272
Ribosomal protein S9	1.3150295	1.2541131	1.6387985	1.309577	1.4895593	1.4182341	1.2802167	1.202473	1.3338516	1.1023035	1.331808	1.3280892	0.6974438	0.6832528
Phase-1 RCT-12	0.995904	1.0416619	0.9246583	1.1237488	1.0929352	1.1073791	1.1336422	1.4516833	1.3602393	1.170492	1.2169627	1.3653617	1.1255708	1.0801247
Beta-tubulin, class I	1.0954233	1.2289781	1.0134143	1.5483613	1.3095841	1.3349802	1.4150964	1.8414356	1.5002012	1.5072911	1.6184801	1.632763	1.7295216	1.5022422
Argininosuccinate lyase	1.0456018	1.256429	1.1505351	1.3509879	1.2208346	0.9742242	0.8459808	0.8647442	1.0417303	0.8355841	0.7680508	0.8606141	0.876506	0.9913822
Elongation factor-1 alpha	1.051992	1.1833915	1.2256874	1.3377715	1.4105369	1.3935632	0.9933733	1.1777081	1.0283189	0.9914386	1.1502915	1.1802515	0.7394381	0.806003
Phase-1 RCT-55	0.9406915	0.7982703	0.8121365	0.6918559	0.798774	0.8298906	0.9845696	0.950723	0.9175192	1.0744718	0.9761716	1.1140611	0.9269818	0.8830313
Macrophage inflammatory protein-1 alpha	1.131934	1.1142359	0.9999999	0.7627993	0.7743812	0.9049805	0.9422903	1.2904842	0.9986079	1.0505606	0.9938096	1.025461	1.2028037	1.1335586
c-Hras	0.9440107	0.9597198	0.8715734	1.1644638	1.2457188	1.4056188	1.0461418	0.9875602	1.0126089	1.1414568	1.1788186	1.2669216	0.8798827	0.7846379
Multidrug resistant protein-1	1.1135201	1.0973839	0.8513599	1.3866185	1.7995007	1.0307683	0.9737257	1.5768877	1.1856297	1.3892933	1.458121	1.3789705	1.2529205	1.7073212
T-cell cyclophilin	1.2186554	1.1013584	1.224077	1.3098522	1.357814	1.1068131	0.9681709	1.1768817	1.0281165	1.0299401	1.1158453	0.9842374	0.5046292	0.5046292
Phase-1 RCT-185	1.1679311	1.0291506	1.304285	0.8548406	0.9367766	1.0881146	0.9601484	1.0755127	0.7025735	0.8159303	0.7933003	0.7196643	0.7862408	0.8968077
25-DX	1.1003483	1.0928013	1.3845561	1.1209432	1.1776304	1.4695295	0.9767329	1.0718887	0.8188422	1.0367904	1.4789933	1.1036875	0.8826919	0.788276
Rel-1	1.0395484	1.183531	1.1968117	1.0214585	1.265418	1.1448743	1.2164689	1.4992781	1.4210588	1.9499862	2.2664425	0.2669578	0.8655755	0.9440693
Apolipoprotein CIII	1.2500895	1.0468013	1.1350039	1.2161075	1.5448645	1.2730836	0.8883826	0.7772111	0.7250334	0.8009769	0.75723	0.5984049	0.8813084	0.8842528

NADPH quinone oxidoreductase-1 (DT-diaphorase) Pyruvate kinase, muscle	1.3807113	1.1966118	1.3246768	1.0690687	2.1697483	1.7980651	1.1425916	1.4663283	1.4810566	2.1605155	2.7178252	2.2045162	0.8727369	0.9138369
	1.0970548	1.0047013	0.8936856	1.0719582	1.177124	1.158289	1.0986661	1.3283399	1.2356503	1.0551441	1.1328607	1.116781	1.0669962	1.1577379
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 hr: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Table 35. Expression Data for 24 Hour Timepoint (1)																			
Compound-Dose (2)	Animal Number (3)																	PUR 150	QUIN 25
Liver Toxicity Necrosis Classification (4)																		PUR 150	QUIN 25
Gene Name (5)																		PUR 150	QUIN 25
Phase-1 RCT-78																		PUR 150	QUIN 25
Gamma-actin, cytoplasmic		1.3931217	0.9482855	0.8759292	0.9633145	1.0770189	0.8528817	0.9374993	1.0645751	1.3102221	1.0358194	0.9833112	1.178431	1.2139636	1.0527768				
Meitrin F/G		0.852407	0.7751247	1.0170078	0.8988741	0.8544153	0.7989874	0.9265812	1.2848973	1.1303768	0.8741316	0.8973408	0.9633074	0.9028366	0.612314				
Zinc finger protein		1.3342508	1.005943	1.2181829	0.8953324	0.9875332	0.9794988	1.1369069	1.1837651	1.3273002	1.0719164	1.0919164	1.3273002	1.1784827	0.965327				
Cathepsin L, sequence 2		0.9543369	0.7087627	0.5893349	0.7062179	1.187741	1.133443	1.2241381	0.7768126	0.9931212	1.1407169	0.9537212	0.8509998	0.9338592	0.9741769				
Gadd45		1.0858508	0.855082	0.8699882	0.8156406	0.8612172	1.0352339	1.1032578	1.1170532	0.8731833	0.981345	0.8753056	1.0668571	1.4191232	0.8652589				
Phase-1 RCT-144		1.1189228	1.6145211	2.2344668	1.8680197	1.2939874	0.8784358	1.018031	1.2352762	0.9369449	1.0425459	0.713066	1.0580709	1.250975	1.0639926				
Phase-1 RCT-145		0.9189215	1.0797089	1.1179547	0.9418925	0.8910266	0.9280317	0.8768233	0.9456663	1.109673	1.1624205	1.0807217	1	1.0628467	1.0332111				
Phase-1 RCT-90		1.1056138	1.5420861	1.2157737	0.9403247	1.0918947	0.9806311	0.9616987	0.8144794	0.8864563	1.0455493	0.9726354	0.887562	0.8683834	0.9848822				
Phase-1 RCT-52		1.1853875	1.5447166	1.4955015	1.4834608	1.2872071	1.1048814	1.1412555	0.9861176	0.981558	0.9650111	1.340371	0.7978187	0.7569069	0.9886882				
Phase-1 RCT-89		0.9332854	0.7403539	0.9482566	0.7265291	0.9235927	1.0881068	1.1811488	1.0718478	0.9623397	1.1281408	1.0327787	0.9030214	0.8904583	0.914287				
14-3-3 zeta		1.2247324	1.3472115	2.0428762	1.3078387	0.9476872	0.8294261	0.8327295	0.9568688	0.9590102	0.9520721	1.135389	1.3315772	1.1425169	1.2764839				
Dynamitin-1 (D100)		1.0703322	0.7426757	0.6774321	1.0741257	1.0895035	0.960108	1.1260041	1.2631251	1.4042493	1.4516855	1.4037815	1.1441544	1.2282858	0.9602488				
Insulin-like growth factor binding protein 1		1.2585777	1.0166424	1.2182635	1.2206529	1.0963703	1.1381238	1.0473185	0.9941923	0.8614938	0.7224568	0.8854182	0.9580864	0.9280048	1.0910687				
L-glutono-gamma-lactone oxidase		1.5686523	0.9686887	0.8881233	0.9248349	0.5761963	0.3793916	0.5432696	1.1302024	1.3204004	1.147117	1.3021693	1.3143433	0.9139709	0.9282004				
Onitline decarboxylase		1.9620122	2.258693	2.0640047	2.1664467	1.1828884	0.8550764	0.8346332	1.130574	0.7855509	0.9002153	1.0718437	1.2900862	1.246349	1.0990022				
PAR interacting protein		0.9119869	0.8351138	0.8470702	0.8845827	0.920735	0.9265968	0.8883333	1.022275	1.0279727	1.0413941	0.9575956	0.9450212	0.981501					
Phase-1 RCT-128		1.1243243	0.652554	0.6598765	0.7240809	0.8582925	0.9281404	0.9323387	0.8751745	1.017798	1.3484883	1.5774268	1.3951895	1.1270227	1.1694187				
Phase-1 RCT-180		1.0710053	0.9005563	0.7310515	0.7757568	0.9281404	0.9323387	0.8751745	1.017798	1.3484883	1.5774268	1.3951895	1.1270227	1.1694187	0.9737379				
Phase-1 RCT-182		0.6138846	0.650215	0.7012677	0.5995349	0.9523336	1.1499349	1.1110083	1.0259411	1.1687339	1.0248908	0.9157327	1.0442426	0.8533665	0.9306076				
Phase-1 RCT-207		1.1229448	1.5989505	1.4324657	1.3211188	1.1064781	1.0537797	1.051076	1.0481902	1.1356007	1.0403031	1.0496886	1.2099297	1.1358478	1.0533913				
Phase-1 RCT-213		1.34116873	1.6787869	1.5124265	1.3987917	1.1620291	0.984861	1.0012627	0.9593037	1.0489507	0.9780719	0.9415407	1.3758757	1.23126	0.9730299				
Phase-1 RCT-256		1.1763612	1.1059732	1.1464818	1.088121	0.7776016	0.8039603	0.8859218	0.9705028	0.9894408	1.2411373	1.1835926	0.9432303	0.7713182	0.9835368				
Phase-1 RCT-258		1.0177028	1.2105052	0.9009715	0.9102608	1.1499013	1.0764107	1.0076282	0.9697112	1.012419	1.0557899	0.9929546	1.2268568	1.0505431	1.0234112				
Phase-1 RCT-264		0.6290201	0.6506881	0.4882972	0.7910522	0.8768913	0.7855412	1.0580342	1.2500962	1.2125191	1.2161921	0.7314287	1.1579235	1.0496624	0.6563345				
Phase-1 RCT-271		1.1208429	0.917381	0.7563402	0.8139433	0.8713576	0.7849261	1.0767287	1.3053808	1.0597711	1.2246428	1.3002732	1.4238212	1.2854012	1.0111132				
Phase-1 RCT-288		1.0192975	0.7866383	0.8168164	0.9114533	1.148776	1.266461	1.5762904	0.8319045	0.9258976	0.9117199	0.778823	0.9277865	0.7552323	0.9853258				
Phase-1 RCT-38		1.1665432	0.921813	1.4052379	0.8311333	0.7317744	0.8742822	1.1942757	1.1176802	1.3505038	1.4675643	1.1601557	1.1753129	0.9473301					
Phase-1 RCT-39		1.2125387	1.4125965	2.3039718	1.4080751	0.9392335	0.8761045	0.9700981	1.2273827	1.0080364	0.9785041	0.987368	1.3935341	1.6314013	0.9829932				
Phase-1 RCT-68		1.3860897	1.1950681	0.9581259	1.2978503	1.0494736	1.0830935	1.1013256	1.2920259	1.1587706	1.1729709	1.0420145	1.5095077	1.517062	1.0908786				
Phase-1 RCT-33		1.4592078	0.9436566	1.1198797	1.2215228	0.6806648	0.7343988	0.9054492	0.8334774	0.9216842	0.9133976	1.160656	0.9348851	0.9159316	0.9808205				
Phase-1 RCT-36		1.194796	1.0869293	1.1415285	1.2738779	0.7801197	0.8378728	0.9138964	0.822591	0.8774204	0.8906821	1.1700587	0.9178675	0.9002619	1.0077785				
17-beta hydroxysteroid dehydrogenase, type 2		1.2552596	1.2159914	1.0275359	2.6807446	0.4884267	0.4430832	2.5405722	0.5808776	0.4379293	0.6398925	0.3709935	0.3478741	0.4546317	1.002293				
Senescence marker protein-30		0.8855018	0.523519	0.422708	0.3930963	0.9142855	0.7294056	0.8626612	1.2950164	1.4567496	1.1480064	0.7115146	1.4083627	1.0917314	0.8071843				
Ribosomal protein S17		0.7517387	0.7726013	1.0436355	0.9256892	1.1160074	1.0409194	1.2538981	1.3178543	1.1187488	1.3357558	1.0542296	1.5789634	1.3416605	0.8053108				
Phase-1 RCT-83		0.6876273	0.5323452	0.7315042	0.6030686	0.8357046	0.9528832	1.04241	1.095141	1.016986	1.0750015	0.8029293	0.8589164	0.9059128	0.8786108				
Phase-1 RCT-49		0.9182984	0.9064066	1.0867226	1.0382648	0.9766386	0.9647411	0.9683083	0.8367141	1.0312035	1.0262363	1.0053183	1.0053183	0.9464631	0.8897085				
Phase-1 RCT-48		1.2015344	1.1332221	0.7035966	1.2646375	0.9280195	0.5891244	0.6083315	1.3321055	1.3306913	1.39749	1.3580881	1.3607554	1.6720998	0.867276				
Phase-1 RCT-40		1.2435855	0.8971276	0.7930887	0.8744047	0.9082475	1.2208556	1.3334777	0.9320377	0.9155852	1.0219839	0.9395569	0.8790186	0.8177124	0.8181292				
Phase-1 RCT-296		0.9218822	0.8599396	0.8412798	0.8505126	0.3223849	0.734029	0.7843578	1.171437	1.2054237	1.3876404	1.0295518	1.1496809	1.0548476	0.8720878				
Phase-1 RCT-295		1.7035103	1.263572	1.2837512	1.2953727	1.0058327	0.9491963	1.1573129	1.4344728	1.3774384	1.3530191	1.088432	2.0538628	1.9678106	0.9171631				
Phase-1 RCT-291		0.8220951	1.0675035	1.1790333	0.908021	0.7117708	0.7457661	0.7879189	1.031639	1.0547712	1.0157382	1.0039705	0.9838791	1.0591692	0.9676504				
Phase-1 RCT-270		0.812644	0.597301	0.7563118	0.4837586	0.9457537	1.0822321	1.190398	1.0267261	1.1621456	1.0632836	0.9129586	0.9872496	0.8483733	0.7375349				
Phase-1 RCT-241		0.821336	1.0871738	0.942003	0.8767905	1.1864891	1.3568008	1.0014669	1.0124931	0.9630087	1.0166425	1.0185623	0.9574187	1.0172418	1.0735934				

Phase-1 RCT-191	0.9665746	0.7109276	0.731363	1.0072421	0.8779188	0.6999713	0.7371354	0.8291966	0.9879354	1.0472698	1.0497805	0.9038601	1.0679215	1.0490595
Phase-1 RCT-189	0.9829502	0.8940215	1.1663336	1.2709137	1.0007676	0.9106336	1.008667	0.6622378	0.7704001	0.7518947	0.9512751	0.605778	0.8498617	1.1656815
Phase-1 RCT-179	0.9145662	0.6312935	0.6678126	0.7342489	0.9877846	0.9443004	1.1169607	0.9817542	0.9881224	1.0304334	0.8951941	1.0537809	0.8019953	0.8679042
Phase-1 RCT-152	1.0087266	0.7058618	0.9417084	0.9837877	0.9482433	1.1866969	1.4358358	1.0255338	1.3486654	1.1473169	1.4201219	1.3618982	0.7803856	
Phase-1 RCT-123	0.9710618	1.1866676	1.0934878	1.0745621	1.1407896	1.0248716	1.048335	1.1027435	1.0391377	1.174786	1.3259852	1.1781644	1.0492045	
Paraoxonase 1	0.3993798	0.2276444	0.4874812	0.281783	0.6884713	0.7016091	0.9301739	0.9374228	0.8773083	0.9030237	0.965768	0.8308595	0.7005753	
Organic anion transporter 3	1.3252044	0.83891	1.3748976	0.7592773	0.5952713	0.76925	0.9672881	1.3766134	1.1520414	0.9718759	0.6753391	0.9940133	1.298808	1.0355397
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	0.5259118	0.3377366	0.5087899	0.4803006	0.9008225	1.082015	1.1971567	1.1105255	1.0789756	1.1346847	0.8181921	0.9558696	0.9955902	0.7756133
Integrin beta1	1.5644319	1.7936729	1.9792509	2.031476	1.1542113	0.8876593	0.923847	1.2588307	1.0338233	1.0156617	1.001623	1.178779	1.2420021	1.0504164
Insulin-like growth factor binding protein 3	0.7833545	0.5436072	0.6404775	0.5933812	0.6544629	0.7605571	0.6743959	0.4728847	0.7265811	0.6884435	0.7031336	0.5578699	0.4675067	0.7952873
ID-1	1.5952716	1.3105171	1.6738713	1.3931935	0.8917427	0.8216634	0.7115907	1.0344301	1.0343043	1.0095169	1.1160401	1.2304094	1.5455824	1.0428363
Hepatic lipase	0.4501011	0.3910347	0.4342633	0.4401655	0.664503	0.6244513	0.6859726	0.7212262	0.8440919	0.908092	1.2869017	0.7358881	0.9080542	1.0174009
Heme oxygenase	2.435522	3.2578213	2.1374784	5.6134152	1.323749	1.0404551	0.858879	0.9008815	0.7268839	0.8278591	0.653206	0.5392975	0.6662484	0.90722995
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.6594676	0.5256147	0.6549604	0.6092755	1.0304985	1.0830164	0.8668218	1.1053175	0.9831296	0.8751978	0.8580809	0.9205711	0.7264434	0.9230686
Epidermal growth factor	0.6076459	0.6845575	0.5963875	0.5774066	1.0327164	1.1091331	1.1040318	1.1656106	1.0558574	0.9636077	0.9935051	1.0828428	0.9197633	0.9753654
c-myc	0.9603114	1.8423061	2.0737143	1.564699	1.266979	1.032762	1.537318	1.6251683	1.1507179	1.3247337	1.2174094	1.0964655	1.1176052	1.0682324
Carbonic anhydrase III	1.8291625	0.6579221	0.1841041	0.5841162	0.5882562	0.3394526	0.8492595	1.3313161	1.7878973	1.2322781	0.9279615	1.5931683	1.2893487	0.4595247
Beta-actin	1.7217063	1.3941528	1.4223367	1.2098732	0.5915952	0.7088081	0.5631421	0.7085763	0.6266839	0.8900166	0.988194	1.0581359	0.9380752	
Bax (alpha)	1.3624527	1.9108559	1.9692887	1.8977394	1.1718135	0.9674365	0.828158	1.4588511	1.137699	1.1792024	1.0228235	2.097134	2.4598	1.0816919
Alpha 1 - inhibitor III	0.4357251	0.1857627	0.2170262	0.3096549	0.514979	0.9713823	0.9010947	0.7272087	0.6650058	0.8955242	0.4601556	0.5238825	0.7907036	
60S ribosomal protein L6	0.7384698	0.8551989	0.7346933	0.8274319	1.0071105	0.9131455	0.9945142	1.2056105	1.000431	1.0448604	0.9357622	1.3056123	1.1687535	0.8850222
Phase-1 RCT-117	1.0934793	1.1788768	0.8549924	0.8457238	0.9662721	1.296158	1.1448171	0.8684437	1.2388304	1.43395	1.158992	1.4738034	1.4738034	
Phase-1 RCT-102	0.7389631	1.3587829	1.1500988	0.9065123	0.4734413	0.759895	0.8703557	1.0030366	0.8884	0.7798803	0.8260614	0.849023	0.8260614	0.849023
3-hydroxyisobutyrate dehydrogenase	1.1779948	0.576692	0.5152311	1.0414845	1.027396	1.245396	0.9197102	0.7812628	0.8474102	0.7352387	0.7804788	0.768648	0.9527898	
ATPase inhibitor (rat mitochondrial IF1 protein)	0.6752487	0.4003787	0.3883172	0.5308891	1.2585374	1.1614265	1.1283952	0.9911843	0.897929	1.0071806	0.7850053	0.9727635	0.7660936	0.75896
Alpha-2-macroglobulin	0.4019149	0.3023162	0.3487433	0.355228	0.9832198	0.8603443	1.289355	1.3099949	1.032604	1.0448245	0.9047291	0.9964047	1.1658968	0.9921243
Phase-1 RCT-137	0.4968751	0.3246517	0.2864712	0.4473665	1.0339828	0.8551493	0.9925233	1.1105427	1.2337664	1.2459505	1.1979705	1.0129396	0.8419915	0.8895667
Phase-1 RCT-252	1.0213399	0.6133667	0.7657425	0.7556202	0.8817379	0.8081656	0.9785787	0.6771212	0.7271106	0.7009793	1.1950767	0.7466064	0.6992731	0.8081184
Phase-1 RCT-65	1.1685802	1.1608448	1.1476823	0.9204384	1.1733794	1.1283009	0.9005585	0.9783447	1.0579706	0.9367471	1.0149153	1.1736362	1.1776758	0.9765218
Liver fatty acid binding protein	0.8940865	0.4023915	0.5284782	0.7138901	0.5982145	0.8247554	0.7763153	1.0385555	0.9338478	0.8142077	0.7219544	0.6314094	0.481154	0.6928771
Carbamyl phosphate synthetase I	1.1667702	0.6088784	0.8822693	0.7343233	0.9501245	0.7745791	1.0015072	1.03410494	0.8529418	0.4983969	0.9985298	0.3419062	0.4045982	1.2719805
c-Jun	1.2353556	1.5851839	2.1558005	1.9235353	0.9425615	0.8991848	0.9324527	1.1534694	0.9099327	0.8782947	0.8707161	0.9287175	1.2017705	1.495081
Transferrin	0.5127378	0.2126598	0.2139658	0.3407978	0.7236181	0.6545037	0.9452861	1.3479048	1.288237	1.1993573	0.5830997	1.3110855	1.302487	0.5777658
Aflatoxin B1 aldehyde reductase	1.0777822	0.5807305	0.5022711	0.4750684	0.6865992	0.582305	0.7827747	1.7730619	1.6093724	1.6672593	1.158128	2.226149	1.5160763	0.8632206
Phase-1 RCT-15	2.7544286	1.888108	1.0315828	1.7587733	1.1863095	1.0289335	0.9512366	0.9143987	0.833034	1.000939	0.6048183	0.8277987	0.8890795	0.9629573
Insulin-like growth factor I	1.11165	0.4244022	0.4948832	0.6249808	0.5825043	0.9208087	1.2500373	1.1937184	1.2177778	0.9546348	0.8489714	0.5205467	0.4487665	0.8053352
Sodium/bile acid cotransporter	0.7817152	0.8523673	0.7019866	0.8357213	1.1851923	1.0781773	1.0039765	1.0804435	0.993319	1.018497	0.9730313	1.3232245	1.1803985	0.9002472
Organic cation transporter 3	0.9585432	1.3397591	1.609979	1.2044159	1.1566212	1.0420221	1.2556634	1.1195009	0.9997616	1.0189667	1.4937395	1.6063533	1.0571584	
Gadd153	1.0222733	0.7789074	1.0718118	0.908197	0.99957	0.8401248	1.0878533	1.336296	1.0619586	1.1016183	1.1838129	1.2741897	1.2177144	0.9770686
Phase-1 RCT-109	0.7446241	0.617419	0.6941021	1.093092	0.969002	0.9749044	1.0348508	0.630362	0.836838	0.8634356	0.9481176	0.7322763	0.7023335	1.1543163
Phase-1 RCT-88	0.6735597	0.5113915	0.4746227	0.6646352	1.1945399	1.0853708	0.883354	1.3020006	1.0105556	1.0456108	1.0039783	1.1488535	1.0686669	1
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.8629923	1.3012953	1.1101847	0.778845	1.3670243	1.2848794	0.9872775	1.0876074	0.8751145	1.12076	0.9214653	0.721667	0.8717648	1.1143619
Glucose-regulated protein 78	1.2812889	0.7669267	1.5516144	1.1499544	1.0399258	0.8083968	1.046998	1.2094421	0.9584273	0.9738517	1.0541776	1.2533122	1.2657664	1.0345268
Ribosomal protein L13A	1.0943642	1.1020247	0.8751198	0.9763416	1.5849905	1.3141739	0.867688	1.1704521	1.0452875	1.041433	0.9246817	1.3397326	1.1860888	0.9538322
Monocyte chemoattractant protein receptor (CCR2)	1.0857185	1.8840354	1.4177784	1.2209109	1.1484953	1.0751984	0.705027	0.6986767	0.7643318	0.8229191	0.8949409	0.8425489	0.9752446	1.1569496
Fas antigen	1.4298669	1.2743893	1.3019893	2.0227895	0.9766015	1.1365831	1.0651437	0.9917087	1.0060829	1.0571504	1.1765889	0.9755599	0.9074166	1.3893153
Calpain I heavy chain	0.9638218	1.2216827	1.3574905	1.3630351	1.1634705	1.0287762	1.0612844	1.18393	1.0291772	0.9705128	1.0171771	1.2171835	1.2849333	0.9889948
Uncoupling protein 2														

Phase-1 RCT-168	0.8228663	0.860021	0.884811	0.907633	0.9624162	0.9264378	1.0132192	0.6931724	0.8581658	0.8988843	0.9695855	0.8206906	0.7907286	1.0644405
Phase-1 RCT-154	0.9384376	1.1625053	1.0583947	0.9765859	1.0426619	1.017515	0.9638216	0.8658128	0.9148554	1.0516373	0.9491661	0.8206906	0.7907286	1.0644405
Superoxide dismutase Mn	1.2153718	1.2328404	1.5455337	1.8662498	1.1657478	1.0978903	1.16223875	1.2262337	1.16223875	1.0978903	1.16223875	1.2262337	1.16223875	1.0978903
Phase-1 RCT-214	0.9877735	0.7023516	0.4500406	0.731053	0.7592388	0.7714346	0.7349864	0.8793865	1.0243044	0.731053	0.7592388	0.7714346	0.7349864	0.8793865
Phase-1 RCT-225	0.8968247	0.7790284	0.830026	0.8337902	0.8679274	0.8398468	0.8305924	1.1244746	1.135909	0.7790284	0.830026	0.8337902	0.8679274	0.8398468
Phase-1 RCT-181	0.8478115	0.7149683	0.7412876	1.0285153	0.9600195	0.9387358	1.0020168	0.7300708	0.8744831	0.8988559	1.1257982	0.876453	0.7705918	1.0240157
Nucleoside diphosphate kinase beta isoform	0.8403223	0.8608511	1.0694425	0.9453098	0.8064604	1.0033407	0.8130994	1.1428217	1.0686893	1.2417622	0.8093783	1.6616473	1.661652	1.1352782
Extracellular-signal-regulated kinase 1	1.460816	0.9429148	0.7128263	0.8321872	0.833137	0.4303031	0.906659	1.3258423	1.7916913	1.2455004	0.3739165	1.5924586	1.2994815	0.4759278
[Ribosomal protein L6]	1.4821235	1.094539	0.948311	1.1346211	0.9864298	0.945121	1.0044655	1.1111387	1.1560725	1.2057074	1.1560725	1.2057074	1.1560725	1.0044655
Aldehyde dehydrogenase, microsomal p53	1.2170534	1.0179797	0.926331	1.0433439	0.7985567	0.9264132	1.0234106	1.0275314	1.0598164	0.9768148	0.8941077	1.1067256	1.0000972	1.0611748
Phase-1 RCT-239	1.1559552	1.1707462	1.0021985	1.0253423	0.902647	0.8291052	0.8940784	1.357921	1.222491	1.3202843	1.5239137	1.3973541	0.990631	0.990631
Phase-1 RCT-239	1.2839587	1.1768624	1.2542163	1.0845545	1.0749808	0.8149808	0.9168713	0.9562604	0.9769846	0.9842565	0.9389484	0.8766098	1.0072464	0.8766098
Macrophage inflammatory protein-2 alpha	1.1103648	2.0506077	1.9963089	2.7863204	1.7296944	1.3984755	1.057463	1.225336	0.9602098	0.8469707	0.9782754	1.0913934	1.2490882	1.0232733
IgE binding protein	1.3121263	0.9835704	0.7496921	1.3207936	1.0056168	1.1103745	1.2440051	0.9465332	0.9184237	0.8396217	1.1446973	0.8508752	0.8100493	0.9282412
Phase-1 RCT-205	0.8759995	1.2586663	1.6098799	1.3608786	0.88207	0.9009178	0.8740805	0.8999773	1.1021888	1.1120857	1.1570783	1.0365773	1.0104114	1.0370882
Melanoma-associated antigen ME491	1.0573484	1.0990117	1.3235252	1.2436352	1.1585406	1.1992071	1.367134	0.8596842	1.0414617	1.073381	1.1359566	0.9044821	0.9142397	0.9258411
Phase-1 RCT-242	1.1013534	1.4705359	1.6158729	1.3519225	1.3978621	1.4233974	0.9008272	0.8845648	0.9700783	1.0476485	1.0485517	0.9553069	0.8712784	0.9218593
Endolase alpha	0.5726591	0.7430871	0.667427	0.6208412	1.116167	1.094056	1.2065243	0.726719	0.7704854	1.2043334	1.0908909	0.9570065	0.954432	0.8879379
Thymosin beta-10	0.7365118	0.7543994	0.6606314	0.8194007	1.0188379	0.8841261	0.8884449	1.140737	1.0670395	1.0025921	1.0346295	1.192718	1.4770622	1.0796021
Cofilin	0.7496322	1.188137	1.1852311	1.012857	1.4083107	1.2149515	0.9839226	1.3604774	1.1263167	1.0582131	1.1263167	1.0582131	1.1263167	1.0582131
Carbonyl reductase	1.179197	1.025687	1.688882	1.9146814	0.9365672	1.0834298	1.0371648	1.0612843	0.9516887	0.8983493	0.7943598	1.0270408	0.9867942	1.0379138
MAP kinase kinase	0.8184466	0.5885994	0.5952278	0.8091441	0.9970687	1.164422	1.1670817	1.0663964	1.1210763	0.9860404	1.5449513	1.2036796	0.8324402	0.8324402
Phase-1 RCT-162	1.1450472	1.5621533	2.053513	1.3572544	1.2137234	1.0703525	0.9559256	1.1484046	1.087422	0.9866677	0.9919738	0.9819115	1.0522423	0.9345928
Phase-1 RCT-72	0.7932982	0.6102541	0.5116074	0.8881693	1.0724765	0.9647878	1.2350065	0.9160009	0.8086751	1.5305461	1.8335924	1.2422686	1.0033842	0.7936675
Ribosomal protein S8	0.7690787	1.1448867	1.7936352	1.0863998	1.0963128	1.092488	0.8831902	1.2701594	1.1024978	1.0905153	1.1835924	1.2422686	1.0033842	0.7936675
Proliferating cell nuclear antigen gene	1.0023285	0.9048307	0.7248219	0.9280626	1.0515157	1.071537	1.1334776	0.8910161	0.950271	0.8380848	0.8934173	0.8471299	0.8022142	0.894142
Phase-1 RCT-192	0.637881	0.9117621	0.8188443	0.8753571	1.0033299	0.9901904	0.9540928	0.8096273	0.950271	0.8380848	0.8934173	0.8471299	0.8022142	0.894142
IKB-a	1.257166	0.9762037	1.1741261	1.2893927	0.7855582	0.4760155	0.6148866	0.8245942	0.9798462	0.796095	1.1136726	0.6842027	0.7589394	1.2984071
Endogenous retroviral sequence, 5' and 3' LTR	1.278767	1.3757353	1.2542653	1.316131	1.2276294	1.0963138	1.0376618	1.0958736	1.0115653	1.1459687	1.291045	1.3615165	1.1674701	0.9152616
Phase-1 RCT-37	2.041387	1.9105209	1.983209	1.8803958	1.2614836	1.158877	1.2335101	0.9648084	0.9008418	0.8584962	0.9247216	1.2480894	1.0420702	0.8634478
Matrix metalloproteinase-1	1.5394915	1.829508	1.8582268	1.3973461	1.2433742	0.795817	0.9329268	1.3733817	1.2240802	1.2335131	1.0193083	3.0348942	3.27404	1.0690874
Cyclin G	0.5683401	0.4833345	0.484396	0.5457572	0.9486622	0.9774564	0.894844	1.4486252	1.1775945	1.2574115	1.0293976	1.6505729	1.4318742	0.7639067
DNA polymerase beta	0.977038	1.1935911	0.8811882	0.8687251	1.119139	1.0833909	1.0893016	0.9145214	1.1795388	0.9753059	1.2020661	1.1940215	1.048177	1.2800359
Phase-1 RCT-127	1.4611691	1.4736279	2.493588	1.4167848	0.7647978	1.1643655	1.0687689	1.0602669	0.8333289	0.8475833	0.6938478	1.2262144	1.3631281	0.9030357
Multidrug resistant protein-2	0.5839638	0.4780204	0.4637142	0.6173322	1.1296719	0.9986365	1.0017728	1.2472284	1.152918	1.08557	1.0909538	1.3421401	1.065127	1.0722913
Ribosomal protein S9	1.4226772	0.988793	1.1604182	1.3559804	0.9236201	0.861105	0.7859552	1.1512918	1.08557	1.0909538	1.3421401	1.065127	1.0722913	0.9930476
Phase-1 RCT-12	2.2170424	0.9053487	1.041209	1.5332228	0.9906273	0.7412758	0.6040449	1.100314	1.0875437	1.0962585	1.3462931	1.2587037	1.0853671	0.9188387
Beta-tubulin, class I	1.0997481	0.5298284	0.440427	0.7059594	1.0781267	0.8393408	0.9399381	1.1977493	1.1892755	1.1367239	0.7499071	1.5288361	1.339789	0.9366055
Argininosuccinate lyase	0.7846449	0.4718441	0.6260872	0.5756704	0.8577111	0.8595865	1.0858669	0.7748804	0.874375	0.8200895	0.8294946	1.2255888	0.9836854	0.8522121
Elongation factor-1 alpha	0.9179155	0.8923527	1.2911163	1.0229619	0.8150875	0.8658056	1.0613422	1.0139458	0.9878404	0.9154912	0.9137604	0.9101641	0.8883212	0.8883212
Phase-1 RCT-55	1.0065124	1.7612402	1.448356	1.4732845	1.5228513	1.9438553	1.0590323	1.1480759	1.0857837	1.0236334	1.1692392	0.975223	1.1822815	1.0887159
Macrophage inflammatory protein-1 alpha	0.9970922	1.075605	0.9131969	1.0453375	1.1841125	1.0201089	0.8969568	0.7691484	0.819843	1.0236334	1.1692392	0.975223	1.1822815	1.0887159
C-Hras	0.5227771	0.3670058	0.3732305	0.443651	0.6615576	0.7162942	0.8009344	0.7856274	1.2947125	1.3388631	1.2178735	1.1728552	1.0063707	0.8063707
T-cell cytophilin	0.7794624	0.5531105	0.443651	0.6615576	0.7162942	0.8009344	0.7856274	1.2947125	1.3388631	1.2178735	1.1728552	1.0063707	0.8063707	0.8063707
Phase-1 RCT-185	0.8768996	0.6988992	0.8532984	0.7774722	0.719973	0.7917166	0.8676879	1.1569553	1.2716315	1.0687116	1.0707048	0.8333557	0.8991572	1.0036285
25-DX	1.0843921	0.8431994	1.0215381	1.2592876	0.8494004	1.1100491	0.9465116	1.380583	1.1885477	1.0947565	0.7263802	0.8584321	1.197389	0.8362225
Ret-1	0.8716801	1.1424757	1.0567625	1.0038926	0.8977446	0.7266086	0.8982024	0.9834256	0.9314295	0.8833951	0.7649999	0.7922568	0.75712313	1.1150836
Apolipoprotein CIII														

NADPH quinone oxidoreductase-1 (DT-diaphorase)	1.0180007	1.3543009	1.0937251	1.6516302	0.8814444	1.8304617	0.9703786	1.4107747	1.1488516	1.0387094	0.8270587	0.7860948	1.1644568	0.9057592
Pyruvate kinase, muscle	1.0657641	0.9227019	0.9424861	0.9132966	1.8802722	1.0500202	0.9304692	1.0732787	0.8730691	0.9927813	0.7240837	1.8328377	1.5357057	0.9472378
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Table 35. Expression Data for 24 Hour Timepoint (1)		QUIN 25		QUIN 100		QUIN 250		QUIN 500		QUIN 1000		QUIN 2000		QUIN 4000		QUIN 8000		QUIN 16000		QUIN 32000		QUIN 64000		QUIN 128000		QUIN 256000		QUIN 512000		QUIN 1024000		QUIN 2048000		QUIN 4096000		QUIN 8192000		QUIN 16384000		QUIN 32768000		QUIN 65536000		QUIN 131072000		QUIN 262144000		QUIN 524288000		QUIN 1048576000		QUIN 2097152000		QUIN 4194304000		QUIN 8388608000		QUIN 16777216000		QUIN 33554432000		QUIN 67108864000		QUIN 134217728000		QUIN 268435456000		QUIN 536870912000		QUIN 1073741824000		QUIN 2147483648000		QUIN 4294967296000		QUIN 8589934592000		QUIN 17179869184000		QUIN 34359738368000		QUIN 68719476736000		QUIN 137438954752000		QUIN 274877909504000		QUIN 549755819008000		QUIN 1099511738016000		QUIN 2199023476032000		QUIN 4398046952064000		QUIN 8796093904128000		QUIN 1759218808256000		QUIN 3518437616512000		QUIN 7036875233024000		QUIN 14073750466048000		QUIN 28147500932096000		QUIN 56295001864192000		QUIN 11259003732384000		QUIN 22518007464768000		QUIN 45036014929536000		QUIN 90072029859072000		QUIN 180144059718144000		QUIN 360288119436288000		QUIN 720576238872576000		QUIN 1441152477745152000		QUIN 2882304955490304000		QUIN 5764609910980608000		QUIN 11529219821961216000		QUIN 23058439643922432000		QUIN 46116879287844864000		QUIN 92233758575689728000		QUIN 18446751715139456000		QUIN 36893503430278912000		QUIN 73787006860557824000		QUIN 147574013721156448000		QUIN 295148027442312896000		QUIN 590296054884625792000		QUIN 1180592109772515584000		QUIN 236118421954503104000		QUIN 472236843909006208000		QUIN 944473687818012416000		QUIN 188894737563602432000		QUIN 377789475127204864000		QUIN 755578950254409728000		QUIN 151115790108945664000		QUIN 302231580217891328000		QUIN 604463160435782656000		QUIN 1208926208715155328000		QUIN 2417852417430310656000		QUIN 4835704834860621312000		QUIN 967140966972124224256000		QUIN 1934281934368448512000		QUIN 3868563868736897024000		QUIN 7737127737473794048000		QUIN 1547425467546718896000		QUIN 3094850935093437792000		QUIN 6189701870086875584000		QUIN 12379403540173751008000		QUIN 24758807080347502144000		QUIN 49517614160695004288000		QUIN 9903522832139180008576000		QUIN 1980704566438361715712000		QUIN 3961409132876723431424000		QUIN 7922818265753446862848000		QUIN 1584563651506692723072000		QUIN 316912730301338544656448000		QUIN 63382546060267708911312000		QUIN 1267650921204378222256000		QUIN 2535301842408756444512000		QUIN 5070603684817512889024000		QUIN 101412073673514716672000		QUIN 202824147346831433324000		QUIN 405648294693662866648000		QUIN 811296589387325737696000		QUIN 1622593784651515513932000		QUIN 32451875693031066688000		QUIN 64903751386061223376000		QUIN 129807502722244544000		QUIN 259615005444888000		QUIN 519230010977776000		QUIN 1038460021555552000		QUIN 2076920043111104000		QUIN 4153840086222208000		QUIN 8307680172444416000		QUIN 1661536028888832000		QUIN 3323072057776000		QUIN 6646144115552000		QUIN 1329228022222000		QUIN 2658456044444000		QUIN 5316912088888000		QUIN 1063382417776000		QUIN 2126764035552000		QUIN 42535280711104000		QUIN 85070561422208000		QUIN 1701411224444000		QUIN 3402822448888000		QUIN 6805644897776000		QUIN 1361128995552000		QUIN 27222579911104000		QUIN 5444515982222000		QUIN 1088911976444000		QUIN 2177823952888000		QUIN 4355647915776000		QUIN 8711295831552000		QUIN 174225166631104000		QUIN 348450333262208000		QUIN 696900666524444000		QUIN 13938013330888000		QUIN 278760266617776000		QUIN 55752053335552000		QUIN 1115040666711104000		QUIN 2230081333444000		QUIN 4460162668888000		QUIN 8920325337776000		QUIN 17840646675552000		QUIN 35681293351104000		QUIN 713625866102208000		QUIN 14272517332444000		QUIN 28545034665552000		QUIN 57090069331104000		QUIN 1141801386622208000		QUIN 22836027735552000		QUIN 45672055471104000		QUIN 9134411094444000		QUIN 1826882208888000		QUIN 3653764417776000		QUIN 7307528835552000		QUIN 14615176671104000		QUIN 2923035334444000		QUIN 5846070668888000		QUIN 1169214133776000		QUIN 2338428275552000		QUIN 4676856551104000		QUIN 9353713102208000		QUIN 1870742664444000		QUIN 3741485328888000		QUIN 7482970657776000		QUIN 1496594115552000		QUIN 2993188231104000		QUIN 59863764622208000		QUIN 1197275294444000		QUIN 2394550588888000		QUIN 4789101177776000		QUIN 9578202355552000		QUIN 1915640471104000		QUIN 38312809422208000		QUIN 7662561884444000		QUIN 1532523768888000		QUIN 3065047537776000		QUIN 6130095075552000		QUIN 1226019151104000		QUIN 24520383022208000		QUIN 4904076604444000		QUIN 9808153208888000		QUIN 1961631747776000		QUIN 3923263495552000		QUIN 7846526991104000		QUIN 15693053822208000		QUIN 3138610764444000		QUIN 6277221528888000		QUIN 1255444117776000		QUIN 2510888235552000		QUIN 5021776471104000		QUIN 1004355294444000		QUIN 2008710588888000		QUIN 4017421177776000		QUIN 8034842355552000		QUIN 160696871104000		QUIN 3213937422208000		QUIN 6427874844444000		QUIN 1285575688888000		QUIN 2571151377776000		QUIN 5142302755552000		QUIN 102846051104000		QUIN 2056921022208000		QUIN 4113842044444000		QUIN 8227684088888000		QUIN 1645568017776000		QUIN 3291136035552000		QUIN 6582272071104000		QUIN 1316454414444000		QUIN 2632908828888000		QUIN 5265817657776000		QUIN 1053163515552000		QUIN 2106327031104000		QUIN 42126540622208000		QUIN 8425308124444000		QUIN 16850616255552000		QUIN 3370123251104000		QUIN 67402465022208000		QUIN 1348049004444000		QUIN 2696098008888000		QUIN 5392196017776000		QUIN 1078438035552000		QUIN 2156876071104000		QUIN 4313752142208000		QUIN 8627504284444000		QUIN 1725508568888000		QUIN 3451017177776000		QUIN 6902034355552000		QUIN 138040671104000		QUIN 2760813422208000		QUIN 5521626844444000		QUIN 1104353688888000		QUIN 2208707377776000		QUIN 4417414755552000		QUIN 883482951104000		QUIN 1766959022208000		QUIN 3533918044444000		QUIN 7067836088888000		QUIN 1413572177776000		QUIN 2827144355552000		QUIN 565428871104000		QUIN 11308576422208000		QUIN 2261715244444000		QUIN 4523430488888000		QUIN 9046860977776000		QUIN 1809372175552000		QUIN 3618744351104000		QUIN 7237488702208000		QUIN 1447597444444000		QUIN 2895194888888000		QUIN 5790389777776000		QUIN 1158079555552000		QUIN 23161591104000		QUIN 463231822208000		QUIN 9264636444444000		QUIN 1852927288888000		QUIN 3705854577776000		QUIN 7411709155552000		QUIN 148234131104000		QUIN 2964682622208000		QUIN 5929365244444000		QUIN 1185873048888000		QUIN 2371746097776000		QUIN 4743492175552000		QUIN 9486984351104000		QUIN 1897396872208000		QUIN 3794793744444000		QUIN 7589587488888000		QUIN 1517917577776000		QUIN 3035835155552000		QUIN 607167031104000		QUIN 1214340622208000		QUIN 2428681244444000		QUIN 4857362488888000		QUIN 9714724977776000		QUIN 1942944975552000		QUIN 3885889951104000		QUIN 7771779902208000		QUIN 1554359804444000		QUIN 3108719608888000		QUIN 62174217776000		QUIN 12438013330888000		QUIN 248760266617776000		QUIN 49752053335552000		QUIN 995046066671104000		QUIN 199009333322208000		QUIN 3980186666444000		QUIN 7960373332888000		QUIN 15920746665776000		QUIN 31841493331552000		QUIN 63682986663104000		QUIN 127365973322208000		QUIN 2547319466444000		QUIN 5094638933888000		QUIN 10189178666776000		QUIN 2037735733552000		QUIN 40754754667104000		QUIN 815095093344000		QUIN 1630190866688000		QUIN 3260381733776000		QUIN 65207634661552000		QUIN 13041527333104000		QUIN 260824546662208000		QUIN 521649093344000		QUIN 1043297866688000		QUIN 2086595733776000		QUIN 417319154661552000		QUIN 8346383515104000		QUIN 166927686662208000		QUIN 3338553733552000		QUIN 667710754661104000		QUIN 133544133322208000		QUIN 2670882666444000		QUIN 5341765333776000		QUIN 10683326667104000		QUIN 2136665333552000		QUIN 4273330666888000		QUIN 8546661333776000		QUIN 17093326661552000		QUIN 34186653333104000		QUIN 683733066662208000		QUIN 1367466633552000		QUIN 2734933266688000		QUIN 5469866533776000		QUIN 109393326661552000		QUIN 21878665333104000		QUIN 437573306662208000		QUIN 8751466133552000		QUIN 1750332666688000		QUIN 3500665333776000		QUIN 70013306661552000		QUIN 14002666333104000		QUIN 280053326662208000		QUIN 5601066533552000		QUIN 1120213266688000		QUIN 2240426633776000		QUIN 448085326661552000		QUIN 89617065333104000		QUIN 1792332666688000		QUIN 3584665333776000		QUIN 716933066662208000		QUIN 1433866533552000		QUIN 2867733266688000		QUIN 5735466533776000		QUIN 114713326661552000		QUIN 22942666333104000		QUIN 458853326662208000		QUIN 9177066533552000		QUIN 1835433266688000		QUIN 3670866533776000		QUIN 734173306661552000		QUIN 14683665333104000		QUIN 293673326662208000		QUIN 5873466533552000		QUIN 11747066333104000		QUIN 2349433266688000		QUIN 4698866533776000		QUIN 939773326661552000		QUIN 187953326662208000		QUIN 3759066533552000		QUIN 7518133266688000		QUIN 1503666533776000		QUIN 300733326661552000		QUIN 60146665333104000		QUIN 120293326662208000		QUIN 2405866533552000		QUIN 481173306661552000		QUIN 96234665333104000		QUIN 19246933266688000		QUIN 3849386533776000		QUIN 769877332661552000		QUIN 15397466333104000		QUIN 30794933266688000		QUIN 6158986533776000		QUIN 1231793326661552000		QUIN 24635865333104000		QUIN 49271733266688000		QUIN 9854346533776000		QUIN 1970886533552000		QUIN 39417733266688000		QUIN 788351326661552000		QUIN 15767065333104000		QUIN 315341326662208000		QUIN 6306826533552000		QUIN 12613653333104000		QUIN 2522730666688000		QUIN 5045461333776000		QUIN 100909266661552000		QUIN 20181853333104000		QUIN 4036370666688000		QUIN 8072741333776000		QUIN 161454826661552000		QUIN 32290973333104000		QUIN 645819466662208000		QUIN 1291638933552000		QUIN 2583277866688000		QUIN 5166557733776000		QUIN 10333115466661552000		QUIN 206662306662208000		QUIN 4133246133552000		QUIN 8266492666688000		QUIN 1653285333776000		QUIN 330657066661552000		QUIN 66131413333104000		QUIN 1322562666688000		QUIN 2645125333776000		QUIN 529025066661552000		QUIN 105805013333104000		QUIN 21161002666688000		QUIN 42322005333776000		QUIN 846440106661552000		QUIN 169288026662208000		QUIN 3385760533552000		QUIN 6771520666688000		QUIN 13544413333104000		QUIN 2708882666688000		QUIN 5417765333776000		QUIN 1083548413333104000		QUIN 21670968266688000		QUIN 43341936533776000		QUIN 8668397333776000		QUIN 173369566661552000		QUIN 34673913333104000		QUIN 6934782666688000		QUIN 1386965333776000		QUIN 277393066661552000		QUIN 55478613333104000		QUIN 1109562666688000		QUIN 2218525333776000		QUIN 443705066661552000		QUIN 88741013333104000		QUIN 1774802666688000		QUIN 3549613333776000		QUIN 709922666661552000		QUIN 14198533333104000		QUIN 2839706666688000		QUIN 5679413333776000		QUIN 113582666661552000		QUIN 22714533333104000		QUIN 4542913333776000		QUIN 90858266666880	
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Phase-1 RCT-191	1.00469771	1.0667662	1.0659876	1.2278448	1.1364936	1.3972136	1.4683541	1.5967498	1.7349277	1.466132	1.2335364	1.3052152	1.3182728
Phase-1 RCT-189	1.1115472	1.121845	1.1046964	1.1206658	1.0894144	0.7995531	0.9014626	1.049756	1.0349255	1.0374464	0.7520812	0.8217855	1.0086601
Phase-1 RCT-179	0.9538171	1	0.9465468	0.7886449	0.9300162	0.8453957	0.930162	0.8453957	0.9300162	0.8453957	0.8453957	0.8453957	0.8453957
Phase-1 RCT-152	0.8907142	0.8566635	0.882247	0.834856	0.8861281	0.9663398	0.8927398	0.8514779	1.1782383	0.8116688	1.0241166	1.1132532	1.0760903
Phase-1 RCT-123	1.0025271	0.7849307	0.956364	1.068137	1.1618915	1.0668241	0.9700902	0.9430606	0.7467714	0.8511345	1.039028	0.890298	1.104524
Paraoxonase 1	0.899886	0.7902314	0.8413775	0.6228406	0.733092	0.7980919	0.7640854	0.7937682	1.4776933	1.580447	0.8590479	0.5466783	0.6617387
Organic anion transporter 3	0.9739757	0.9001047	0.872512	0.6483651	0.8844133	1.2361566	1.0286043	1.1766894	1.5992687	1.5729119	1.0179522	0.8815925	0.7192455
N-hydroxy-2-acetylaminofluorene sulfoxidase (ST1C1)	1.0389519	0.8992589	0.8243878	0.6942487	0.9648516	0.8947344	0.7487291	0.8607351	1.5697435	1.1276206	1.024573	0.742498	0.6612911
Integrin beta1	0.9497713	1.1477582	1.0597669	1.319445	1.165864	1.0759894	1.0159849	1.060605	0.8670968	1.0306348	1.033777	1.3250773	1.3333787
Insulin-like growth factor binding protein 3	0.8320833	1.1398792	1.0279908	0.9303042	1.0243487	1.2578481	1.2872284	0.9547393	1.060828	1.3656591	1.2388474	0.6898214	0.7994039
ID-1	1.0884262	1.1371402	0.9864688	0.8374087	0.863956	1.2748618	1.2225031	0.9188454	1.0686537	1.2654668	1.2670076	1.2200742	1.0451714
Hepatic lipase	0.7683316	0.9481161	0.8246586	0.706828	0.7741934	0.595352	0.630793	0.8315541	0.890203	0.8423517	1.020522	0.9878028	0.9895889
Heme oxygenase	1.0019865	0.9881162	0.9866383	0.9235224	0.8770436	1.2609836	1.0491647	0.9968744	1.2814184	1.0916878	0.9411351	0.8965741	0.756523
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	1.002388	0.8216993	0.9610089	0.8252681	0.9625236	1.0478361	0.8377422	1.0225239	1.3581177	1.0784098	1.0087327	0.8120891	0.8289047
Epidermal growth factor	1.0146859	1.0286634	1.0349494	1.0644085	1.033515	0.8729655	0.7890432	0.8170523	0.8413998	0.8933671	0.943271	1.2587658	1.254917
c-myc	0.9556943	1.38997	0.984079	1.0153041	0.9989564	1.0307853	1.1125144	1.0040494	0.8078864	0.737479	1.2144463	1.1787544	1.054029
Carbonic anhydrase III	1.0082513	0.7632411	0.5389375	0.3010709	0.6195228	1.3401947	1.0709704	1.3699516	1.7898778	1.5241112	1.7230647	0.8151803	0.9930639
Beta-actin	0.9972961	1.0483242	0.9683616	1.1216648	0.9036032	1.4153093	1.4022264	1.2511672	1.2975708	1.880906	2.549134	0.8364801	0.8057398
Bax (alpha)	0.9440556	1.2334515	1.1071482	1.2510041	1.1127865	1.4675487	1.5156864	1.5862704	1.2511672	1.2055025	1.021983	1.0757004	0.5098394
Alpha 1 - inhibitor III	0.75893	0.6269792	0.8972026	0.5242618	0.677495	0.8295482	1.1217235	1.0052762	1.5909926	1.303538	1.4185504	0.6899033	0.6791835
60S ribosomal protein L6	0.8693781	0.8577501	0.9208508	0.8547559	0.8843828	0.7491214	0.8032374	0.8412206	0.7784007	0.7163424	0.8907313	1.0904379	0.8528352
Phase-1 RCT-117	1.0282917	0.6518031	1.2029939	1.4547267	1.2879188	1.077324	1.385984	0.8908026	0.784007	0.7163424	0.8907313	1.0904379	0.8528352
Phase-1 RCT-102	0.8046398	1.010012	0.7661107	0.6595602	0.6796862	0.6052773	0.7148840	0.8603412	1.0148526	1.045964	0.7732715	0.4118237	0.3453793
3-hydroxyisobutyrate dehydrogenase	0.9688394	0.8325859	0.8595935	0.7912201	0.8604622	1.3124928	1.1780739	1.0021641	1.355593	1.2733837	0.6739355	0.9116629	1.0939108
ATPase inhibitor (rat mitochondrial IF-1 protein)	0.840812	0.7839512	0.7433301	0.8025259	0.984867	0.7046531	0.7264299	0.6980516	0.9941211	0.9522879	1.1633461	0.8073878	0.8449877
Alpha-2-macroglobulin	0.832054	0.9609988	1.3777124	0.8449843	0.608262	0.7293021	0.9087332	0.7293021	0.9087332	0.7293021	0.9087332	0.7293021	0.9087332
Phase-1 RCT-137	0.8576893	0.8190631	0.8076339	0.736754	0.8520518	0.6888387	0.7043613	0.7409365	0.9633327	0.8127893	0.8963729	1.2298855	1.3277155
Phase-1 RCT-252	0.8744342	0.785658	0.6694077	0.7388598	0.874507	0.7346535	0.9573153	0.8880532	1.3197145	1.1085185	0.8196681	0.8091438	0.6500832
Phase-1 RCT-465	0.9494342	0.9457684	0.9848874	1.0945808	1.0576674	1.6070827	1.7984816	1.487197	1.8407164	1.871033	1.1298929	1.1501768	1.3870738
Liver fatty acid binding protein	0.8121716	1.03972	0.9640737	0.8452461	0.9177136	0.6348498	0.7400168	0.6184926	0.4745234	0.8875213	0.8680769	0.5785438	0.6715767
Carbamyl phosphate synthetase I	0.9309803	1.1402634	0.6478105	0.881358	0.8882811	1.041534	0.9567642	0.8660225	1.4805581	1.0973182	0.7921361	0.7327355	0.5996541
c-Jun	1.0756098	1.225046	1.1570524	1.4257243	1.2189103	1.9942085	1.5361661	1.8345221	1.6257607	2.43984	1.2570914	1.056444	1.4223489
Transhyalrin	0.7541425	0.7861152	0.8819279	0.494745	0.6116468	0.8924196	0.8428356	0.7828351	1.2423944	1.0576386	1.0314531	0.4534544	0.4112089
Allosteric B1 aldehyde reductase	0.9374889	0.6850009	0.7657688	0.6272773	0.6674655	0.7779797	0.7322443	0.8220416	1.3671316	0.9371507	0.7921361	0.8060822	0.9133955
Phase-1 RCT-15	0.96051	0.9881148	1.0614733	0.8990197	0.9846166	1.8142674	1.5162483	1.603406	1.4217535	1.313403	1.3926247	0.7530602	1.1685673
Insulin-like growth factor I	0.7861741	1.2405487	1.0585281	0.8344616	1.0034001	0.8054617	1.0543294	0.820111	0.769081	1.1194048	0.9581918	0.6386777	0.8039534
Sodium/bile acid cotransporter	1.1184043	0.8226817	0.9371352	0.728838	0.726291	0.9814765	1.075808	0.9092911	1.1378054	1.2210947	0.8549092	0.5457214	0.5639889
Organic cation transporter 3	0.9441845	0.970784	0.9929735	0.9953243	0.9190382	0.7656504	0.7596768	0.8432896	0.6517982	0.9680023	1.0580842	1.0326982	1.0040264
Gadd153	0.9670681	1.4260406	1.069338	1.1542411	1.1382079	1.0789173	1.1404984	1.1489121	0.9686582	0.9807586	0.9394975	1.2024871	1.3005846
Phase-1 RCT-109	0.9853692	1.0069788	1.0528793	1.1692456	1.0970207	0.9470859	1.0204807	1.0680451	1.0024991	0.9742496	0.9225084	1.0363775	1.1446784
Phase-1 RCT-88	1.0301274	1.017978	0.9779307	0.9689238	0.9858188	0.845985	1.01285	0.929357	0.7766936	0.8670317	1.0210425	0.9071384	0.7541308
Ubiquitin conjugating enzyme (RAD 6 homolog)	0.9384752	0.9093629	0.8297358	0.9994317	1.0233289	0.8599241	0.8106838	0.8268412	0.9182187	0.9165715	1.0342103	0.9980999	1.1338642
Glucose-regulated protein 78	0.8811379	1.042488	0.9455944	1.2502782	1.4777894	0.7003085	0.8238275	0.9328641	0.8712806	1.488493	1.1650953	1.1194891	1.2283307
Ribosomal protein L13A	1.0184661	1.0735252	1.1131294	1.1947376	1.1478567	1.1744577	1.1744577	1.1006289	0.9824722	0.9426771	1.0894018	1.0544791	1.1076297
Monoclonal chemotactic protein receptor (CCR2)	0.9480851	1.0324234	1.0243238	1.1248039	1.0786991	0.9391533	0.9431151	1.0746467	0.7033113	0.3177289	0.9158628	1.0793685	1.074968
Fas antigen	0.981992	1.0922645	1.0220205	1.1587291	1.1620443	0.9737341	1.0831752	1.0543703	0.8300309	1.2039283	1.2438197	0.9458168	1.028861
Calpain I heavy chain	1.0740087	1.2154534	1.0114828	1.0947686	1.10403	1.2683667	1.1953115	1.0938904	0.8053396	0.9736849	1.0782111	0.9418693	1.0414556
Uncoupling protein 2	1.1059641	1.0602643	1.0604824	1.1608907	1.2703401	1.2210954	0.9416365	1.2521491	0.9943355	1.0608095	1.1882671	0.8566727	0.9876731

Phase-1 RCT-168	0.9626336	1.0635285	1.126018	1.0854802	0.945425	0.8252074	1.0295792	1.1433146	1.1433203	1.0375334	1.1597108	0.9747601	1.6787091	1.4312359
Phase-1 RCT-164	1.0677317	1.0480802	0.8861344	0.9567617	0.9910448	0.8264685	0.9249573	0.9491705	0.8559889	0.9516822	1.172873	1.0307691	0.9225909	1
Superoxide dismutase Mn	1.2121351	1.1491693	1.2256105	1.2292718	1.1217158	1.5066656	1.2944945	1.2167249	1.2946060	1.1104064	1.1740464	1.1302498	1.2395901	1.1978778
Phase-1 RCT-214	1.0181944	0.9996913	1.1806789	0.9623084	1.0404335	0.8296841	1.0776668	1.0704232	0.9660404	0.9806888	1.103413	0.9210545	0.9676013	1.1710846
Phase-1 RCT-225	1.1336652	1.1860988	1.3184081	0.8641732	0.8641053	0.5446528	1.5560852	1.5745536	1.3161542	0.9869337	1.4600333	1.1418269	1.0364285	0.9894386
Phase-1 RCT-181	0.9770507	0.9800698	0.9814629	1.0984005	1.0803332	0.8454187	1.1816501	0.8551773	0.8840938	1.3747162	0.9190233	0.9909251	0.9245121	0.7984807
Nucleoside diphosphate kinase beta isoform	1.0175697	1.0929716	1.119614	1.24388	1.2331465	1.1546963	1.1436331	1.0135412	1.2564354	1.0700525	1.1338161	0.9135842	1.5603817	1.6332768
Extracellular-signal-regulated kinase 1	1.0059124	0.784579	0.6404572	0.540082	0.7103636	1.3942196	1.3421956	1.6805065	1.846991	1.604055	1.4980138	0.9135842	1.7602873	1.1938863
Ribosomal protein L6	0.953007	0.8621512	0.9142078	0.9051589	0.8920639	1.3932541	1.1607488	1.0528127	1.2991239	1.2546222	0.9363658	1.0874461	0.9721299	1.1312537
Aldehyde dehydrogenase, microsomal	0.9930796	1.1237828	1.0857381	0.9387663	0.9761251	0.7587779	1.2963977	1	0.8723947	1.0815754	1.3593597	0.888068	0.8521541	1.0748406
p53	1.0084511	1.0834016	0.9963074	0.9395824	0.9702871	1	0.8428088	0.748112	0.841866	1.0803164	1.0822004	1.0618148	1.0618148	1.04043
Phase-1 RCT-239	0.8877506	1.1310729	0.9956266	0.9545893	1	1.5003866	1.5613377	1.1344893	0.748112	0.9850034	1.1478316	0.9682066	1.0461627	1.4891381
Macrophage inflammatory protein-2 alpha	0.9507828	0.9532023	1.0381384	1.0484562	1.1078929	1.2999144	1.1258103	1.200188	0.9946365	0.9963663	0.7764819	1.0952287	1.2709835	1.1070485
IgE binding protein	1.0171276	0.9485236	0.9512802	1.0894548	1.0912433	0.9948486	1.0022893	0.9389134	0.8394344	0.8658152	0.8705272	0.9813899	1.137184	1.0424714
Phase-1 RCT-205	1.0224509	1.0291259	0.9850021	0.975351	0.9961056	0.8160384	0.976715	1.0291584	0.9717954	0.9410456	1.0489849	1.1917849	1.0237417	1.0299168
Melanoma-associated antigen ME491	0.9245447	1.0246388	0.9541271	1.001422	1.1038555	0.8129708	1.0895994	0.9302378	1.0680028	0.852495	0.8111453	0.9890505	0.8992939	0.8069743
Phase-1 RCT-242	1.0514591	1.1488353	0.981539	1.0646199	1.0025971	0.8915231	0.8530104	0.9644516	0.8024417	0.8459864	0.9224523	1.30055	1.2406824	0.9382833
Enolase alpha	0.9057663	0.6683755	1.012108	0.8874027	1.0076715	1.0187789	0.9595807	1.0598918	1.474059	1.3089176	1.1038827	1.3091049	1.6798949	1.4478686
Thymosin beta-10	1.091519	1.1393633	0.9748127	1.0806097	0.975269	0.9104219	0.9211121	0.8949377	1.0273925	0.9728416	1.2153684	0.8790188	0.7899874	1.0447135
Carbonyl reductase	1.0633426	1.0094491	1.0079721	0.866448	0.9549117	0.8964652	0.9817401	1.104053	0.8036659	0.8692885	0.9803289	1.0604358	1.1759313	1.168122
MAP kinase kinase	1.0167141	0.9993196	1.0549412	1.1399708	1.0944912	0.8964652	0.9817401	1.104053	0.8036659	0.8692885	0.9803289	1.0604358	1.1759313	1.168122
Phase-1 RCT-162	1.025783	1.029203	1.042379	1.0685947	1.0823115	1.0542889	1.0260231	0.8441146	1.0229635	0.9517219	0.8363824	1.0452118	1.1314787	1.0612104
Phase-1 RCT-72	0.9125672	0.873972	0.9920635	1.0828221	0.9042017	1.0237238	1.0383692	1.0052191	1.0085845	1.1512847	0.9839437	0.8941578	0.9526535	0.8753125
Ribosomal protein S8	0.9248243	0.7968872	0.885241	0.9519028	0.8610436	1.1842812	0.8640371	0.8762482	0.7452941	0.772508	0.8628437	0.9976727	0.9864937	0.9102406
Profilin	0.963879	0.8119333	0.9912815	0.9501097	1.0026942	1.4742512	1.0810944	0.8903742	1.230868	1.2826728	0.9814086	0.8807082	0.9872574	0.9960154
Proliferating cell nuclear antigen gene	0.9042031	1.0339168	1.0173527	1.02989015	1.0905578	1.0052681	0.8533219	0.9261123	0.7709491	0.8301197	0.7680544	1.2398424	1.1334608	1.0114144
Phase-1 RCT-192	0.9028577	0.9759845	0.9261076	0.8834555	1.0295821	1.057005	1.0954647	1.0029683	0.9768202	0.9981045	1.0763005	1.0045581	0.8836762	1.1551184
IKB-a	0.9152643	0.7703335	0.9968945	0.9217463	0.9168354	1.0282883	1.0467517	0.9837572	1.4217272	1.1352712	1.0878161	1.3144373	1.3327402	1.3635528
Endogenous retroviral sequence, 5' and 3' LTR	1.1640471	1.1201609	1.1097418	0.9736523	1.0721242	0.9431126	1.1513983	1.1397002	1.2980335	1.1588854	0.9709129	1.1878352	0.9295333	1.2858004
Phase-1 RCT-37	0.9560975	0.8897503	0.9505534	0.9788421	0.9580015	1.3863744	1.081175	1.0568938	0.9879192	1.004018	0.9553637	1.0673664	0.9238964	1.0311445
Matrix metalloproteinase-1	0.9287229	0.7570963	0.9123982	1.0203642	0.9645019	1.1953765	1.1805363	1.2635719	1.334484	1.2477559	1.1385233	0.8169958	0.9118285	1.0318042
Cyclin G	0.9591736	1.1060354	1.0818172	1.2356483	1.124638	1.0739167	1.0439327	1.0286666	1.024409	0.8748565	1.0286954	1.3617098	1.0236127	0.8698508
DNA polymerase beta	0.9258945	0.833943	0.8665812	1.0269709	0.9435389	0.9003359	1.0519295	0.9624347	1.0583605	1.0566417	1.2219576	1.027809	1.1366084	1.0680051
Phase-1 RCT-127	1.0068041	0.8093992	1.0348914	1.2013588	1.1187881	0.8379202	0.9330941	0.9073644	1.0681994	0.8795638	1.1169164	0.7851216	0.8287935	0.8686776
Multidrug resistant protein-2	0.998189	0.9894818	0.9874374	0.9573132	0.986295	1.6385651	1.3122862	1.4545772	1.4644339	1.4995793	1.1205508	0.8736591	0.7705308	0.6886776
Ribosomal protein S9	0.8434375	1.0669831	0.7674298	1.0072409	1.015663	0.7851292	0.7507926	0.8315102	0.7200231	0.9332525	0.9533446	0.9348049	1.027136	1.136326
Phase-1 RCT-12	1.0124675	1.0252539	0.985843	1.1710409	1.1247035	1.5624273	1.8147745	1.6803733	1.4308733	1.381384	1.6210848	1.2206056	1.3223321	1.3134574
Beta-tubulin, class I	0.9580359	0.970106	1.060394	1.2702682	1.1306348	1.7187987	1.78074	1.6205233	1.742921	1.6057833	1.3970199	1.3353655	1.3223321	1.3134574
Argininosuccinate lyase	0.9918819	1.1270836	1.0892242	1.0297531	1.0519974	1.7690759	1.7744771	1.77208	1.5136704	1.3133042	0.9823042	0.6689269	0.8342571	0.9403848
Elongation factor-1 alpha	0.8673294	0.794615	1.0254552	0.8096444	0.943545	0.9174719	0.9837097	0.9490117	1.1682907	1.1774753	1.0589889	0.791445	0.9045323	0.9612051
Phase-1 RCT-55	0.7844067	0.7953624	0.9485411	1.1069722	0.8209959	1.3268735	0.9233556	0.9198794	0.7186564	0.8209871	0.9124084	1.109773	0.950522	0.8013769
Macrophage inflammatory protein-1 alpha	0.9491265	1.0068731	0.936253	1.141063	1.0875758	0.9544671	0.9305776	1.0237983	0.8641072	0.8634783	0.822688	1.2855313	1.1670987	1.323286
c-H-ras	1.2330841	0.9378442	1.1203698	1.1520313	1.2075806	1.1661129	1.1455288	1.1605514	1.0756544	1.0217382	1.0594289	1.080263	0.9804461	1.1278541
Multidrug resistant protein-1	1.0068806	1.0287322	1.0514964	1.0121155	1.4858279	1.5504433	1.8577082	1.4090886	1.5464647	1.159337	1.0745623	1.0417026	0.8778212	0.8778212
T-cell cyclophilin	0.9139574	0.7803552	0.8895077	0.8481591	0.8428069	0.8290817	0.9261271	1.0242454	0.9833316	1.3078314	0.9531656	0.9498904	1.14517	1.14517
Phase-1 RCT-185	1.0391177	0.781726	0.7380878	0.8851133	0.704472	1.0009716	0.8795344	0.9436247	1.0483273	1.4536647	1.0483273	0.9076034	0.8147798	0.9331284
25-DX	1.0736547	0.9270952	0.9461273	0.8162552	0.9450352	0.8780577	0.8876103	0.9207168	0.8763208	0.9455249	1.2204585	0.9364768	0.9173096	1.0403678
Ret-1	1.1454838	0.8723422	0.8507926	1.0392388	0.9550004	1.2816117	1.0300591	1.0906405	0.9869899	0.7841999	0.8251507	1.3904282	0.1814333	1.0732073
Apolipoprotein CIII	1.1204582	1.171088	1.0090351	0.7459483	0.819121	0.6452451	0.7144027	0.868214	0.9235063	0.794842	1.0144042	0.9728832	0.8539191	1.0312399

NADPH quinone oxidoreductase-1 (DT-diaphorase)	1.1796496	0.8599967	1.0274825	1.1945987	1.2820841	1.3479934	1.3606912	1.1846006	0.8256438	0.9200016	0.8214404	0.9009331	1.2735037	1.1858855
Pyruvate kinase, muscle	0.9602091	0.903871	0.948049	0.960112	0.9609635	1.4318986	1.1988251	1.239276	1.1165619	1.1569284	1.0312232	0.8530294	0.9954117	1.0507381
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Table 35. Expression Data for 24 Hour													
Timepoint (1)	TAM 200	TAM 200	TAM 200	TET 50	TET 50	TET 50	TET 50	TET 50	TET 50	THEO 25	THEO 25	THEO 100	THEO 100
Compound-Dose (2)	1454	1455	1456	no	no	no	124	125	126	no	no	2524	2526
Animal Number (3)	no	no	no	no	no	no	no	no	no	no	no	no	no
Liver Toxicity Necrosis Classification (4)	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name (5)	0.8199514	0.8129773	0.7254933	0.8395404	0.9722026	0.9564239	1.118132	1.1220393	1.1266272	0.9388653	0.9188881	1.0755862	0.6981321
Phase-1 RCT-78	1.7031103	1.2575493	1.0774838	1.1315999	1.053749	1.0662037	0.857148	0.9434511	0.7417277	0.7659459	0.9789131	0.7659459	2.8152604
Gamma-actin, cytoplasmic	1.3838259	0.7349602	0.8193156	0.7974814	0.9038278	0.733999	1.1405038	1.07155	0.9838756	0.8634632	0.7548612	0.8688873	0.6992105
Matrix F/G	0.856346	0.9497678	0.7623835	1.6210169	0.8846312	0.9309457	0.9977481	1.8035359	0.9848456	0.919288	0.9311282	1.0060853	2.4403477
Zinc finger protein	0.8703103	1.3191684	1.001722	1.1804118	1.1133437	1.078593	0.6765338	0.9381852	1.0867897	0.9784191	0.7744117	0.8270517	1.7213274
Cathepsin L, sequence 2	1.3178833	1.3832443	1.189902	1.166448	1.2071856	1.2554624	1.3429922	1.350304	1.0493032	1.03104	0.999494	0.8582763	2.088889
Gadd45	0.9935141	1.0238136	1.1933059	0.9762239	1.1177398	1.0048292	1.0173373	0.9628124	1.051437	0.9582852	0.9664823	1.2289285	1.2501448
Phase-1 RCT-144	1.0473697	1.0428458	1.2281488	0.880976	0.9208353	0.94633	0.8991366	0.9074849	1.0265571	0.9157419	0.9876859	0.9080524	1.4177402
Phase-1 RCT-145	0.8363542	1.0581818	0.9061382	1.087121	0.980378	1.1532407	0.7137178	0.8941805	0.9763002	0.9824991	1.0060899	0.9838153	1.5586743
Phase-1 RCT-50	0.7843873	0.9381776	0.7046862	0.8762254	1.2105176	1.0251029	1.222985	1.1729012	1.20954	0.9068178	0.9460542	0.8734289	0.4631075
Phase-1 RCT-82	0.6536114	0.9911636	0.6601166	1.0601469	0.948076	0.9364744	1.0379289	0.9263505	1.027861	0.7177781	0.6244379	0.7236195	0.8430527
Phase-1 RCT-89	1.2847176	1.0563912	1.1491407	1.2425185	1.1583624	1.2175826	0.76079	0.9403356	1.047875	0.9074978	0.8627285	1.0358712	1.595918
14-3-3 zeta	0.9364287	1.0420673	0.8889	1.1568547	0.7369262	1.2310212	0.8834897	1.0644503	1.0897633	1.0086985	0.7673054	1.0084984	0.5147045
Dynamin-1 (D100)	2.1253257	2.1676147	1.0865028	2.0790665	1.0016104	1.0432521	0.7623852	1.0404092	1.1234801	0.9599903	0.8370088	0.946133	1.8059288
Insulin-like growth factor binding protein 1	0.4604853	0.4199915	0.4691511	0.5339329	0.7025774	0.5283398	1.0369339	1.2701422	1.6550367	0.8044473	0.9402264	0.7377338	0.3178815
L-glutono-gamma-lactone oxidase	1.8062198	1.0924271	0.9471608	1.2921811	1.1727189	1.1833607	1.0720319	1.1188783	1.1695348	1.164689	1.2337508	1.000994	1.9478767
Omitrine decarboxylase	1.0979791	1.0126141	1.0486286	1.116798	1.0540023	1.1270181	0.907394	0.9138687	1.0098084	0.839736	0.9431425	0.9076476	1.3840002
PAR Interacting protein	0.9341075	0.8950629	0.7271665	0.8308749	0.8511146	0.9104533	1.0648651	1.2484956	1.1414629	0.6498231	0.727314	0.8531917	0.4078431
Phase-1 RCT-128	0.9091576	0.9346528	0.9730553	0.820663	0.7223328	0.9223328	1.0976607	1.1747284	0.8950982	0.8893852	0.9490431	0.8475983	1.4825579
Phase-1 RCT-180	0.7489989	0.648468	0.7205959	0.6565755	1.0623275	0.7939815	1.1681099	1.3762206	1.1622398	0.8071315	0.8231455	0.9101691	0.5521258
Phase-1 RCT-182	0.847003	1.0251138	0.9611659	0.930474	0.9151595	0.7956744	0.6940133	0.711282	0.8034921	0.8652928	0.8652619	0.8805978	1.681566
Phase-1 RCT-207	0.9718465	0.9505072	1.0227764	0.9374555	0.8571158	0.855327	1.243537	0.9400621	0.949598	1.2005679	1.2547728	0.9709979	1.50194
Phase-1 RCT-213	0.905609	0.4972256	0.5630324	0.5910049	0.8416187	0.5667403	0.9361348	1.1390905	1.2869605	0.8932656	0.9375385	0.7729853	0.463985
Phase-1 RCT-258	0.9239843	0.8758999	0.8415285	0.8719316	0.9079191	0.9465278	0.9830429	0.8752708	0.9701706	0.8993474	0.9289058	0.9313084	1.2287164
Phase-1 RCT-264	0.6897354	0.327111	0.3309729	0.338292	0.727333	0.5220181	1.209898	1.2366326	0.8034787	0.6617537	0.6007329	0.840636	0.3275119
Phase-1 RCT-271	0.7890435	0.8568396	0.5801653	0.8153569	0.9493987	1.0067418	0.8112981	0.7410417	0.8887366	0.9087449	0.8043286	0.7482653	0.6102762
Phase-1 RCT-288	0.7734847	0.8568396	0.5801653	0.8153569	0.9493987	1.0067418	0.8112981	0.7410417	0.8887366	0.9087449	0.8043286	0.7482653	0.6102762
Phase-1 RCT-38	0.8786336	0.5295794	0.7466947	0.5029312	0.8175852	0.5394413	0.9296822	1.1663319	1.3534489	0.9491294	0.9915039	0.8093461	0.4036785
Phase-1 RCT-39	1.1614972	1.1649044	1.3134143	1.1153663	1.129135	1.0298624	0.7388039	0.935647	0.8952121	1.039871	1.0943664	1.120013	1.394147
Phase-1 RCT-68	1.1661713	0.9773762	1.1146749	1.0010878	0.9493987	0.9739088	0.9979102	0.994614	1.0740385	1.2335961	0.9391443	1.2066668	1.077988
Phase-1 RCT-33	0.9440649	0.9733916	0.6894465	0.8846656	0.7611661	0.9982815	1.4083302	1.1922166	1.4344286	0.911099	0.8080772	1.0134815	0.578451
Phase-1 RCT-36	0.8563578	1.0121739	0.8265198	1.0207036	0.9612393	0.9556724	1.0061804	1.1495559	1.0471901	0.9124378	1.1287406	0.7286611	0.7008768
17-beta hydroxysteroid dehydrogenase, type 2	0.3762262	0.6186293	0.468906	0.4633903	0.728251	0.9774213	2.4476786	1.7251128	3.7807474	0.8511449	0.8947511	1.3390231	0.1813125
Senescence marker protein-30	0.8456749	1.1193988	0.7999491	0.8969482	0.9281873	0.8445434	1.6874626	1.2577316	1.0516696	1.0748152	1.0400493	1.0165031	0.5259507
Ribosomal protein S17	1.3845665	1.1984302	1.40463	1.18109473	1.0712252	1.2704825	1.0330361	1.177434	1.3398037	1.291198	0.9394962	1.0568964	0.866909
Phase-1 RCT-83	1.3266336	0.932078	1.0825219	0.7713074	0.7285451	0.7790529	0.7493564	0.9530403	0.8970445	0.8896238	1.0510777	1.129635	0.4709602
Phase-1 RCT-49	0.9202781	0.9847716	1.0089515	0.9527288	1.027578	1.0516976	1.2191465	0.8958899	0.9717873	0.832462	0.8415858	0.8674936	0.9724519
Phase-1 RCT-48	0.7765077	0.7227169	0.7559468	0.7794604	0.731387	0.8033215	1.2684908	1.3074293	0.9902011	0.8421724	0.7051029	1.0403283	0.6044615
Phase-1 RCT-206	0.9525846	0.9125604	0.6989991	0.8657869	0.9193589	0.9519676	1.2052593	1.0547429	0.9814128	0.860472	0.7804128	0.880847	0.9636659
Phase-1 RCT-285	0.4647107	0.1352426	0.3642189	0.735109	1.1982679	1.115162	0.9515432	1.304826	1.2382525	0.408118	0.3549582	0.6180584	0.192587
Phase-1 RCT-281	1.1535925	0.9654422	0.983782	0.7689385	0.7500757	0.822817	1.304492	1.1593333	1.3842819	1.1891232	0.9054197	0.8242085	0.7773164
Phase-1 RCT-270	0.8774033	1.033975	0.797888	0.7452951	0.9820863	0.9999139	1.2453846	1.1348339	1.1891232	0.9054197	0.8242085	0.7773164	0.287257
Phase-1 RCT-241	0.807826	0.9569037	1.054819	0.8542483	0.870163	0.9422358	1.128376	1.0547317	0.7465306	1.0386169	0.9197203	0.8572939	0.3587099
Phase-1 RCT-241	1.1717186	0.8967616	1.248113	1.1315999	0.6622441	1.173317	0.753905	0.7021579	0.9019584	1.1394907	1.0942625	1.1416953	2.4354577

Phase-1 RCT-191	1.0018103	0.9247975	0.8543958	1.2947253	0.6502629	1.0040449	1.1488519	1.0365546	1.1705621	0.9201004	1.083967	1.0494838	1.6250434	1.39287
Phase-1 RCT-189	0.8621593	0.636373	0.7198005	0.5182719	0.7131696	0.5166819	1.2801281	1.2188154	0.9331485	0.932184	0.952063	0.9467708	0.6380764	0.8485993
Phase-1 RCT-179	1.162181	0.8260291	1.1270706	0.70298	0.9896824	1.073728	0.7864871	0.9466672	0.9669802	0.8466792	0.7849215	1.0230837	1.1305246	0.8690059
Phase-1 RCT-152	1.7324953	1.0664618	1.5980669	1.4681828	1.4455384	0.9931613	1.2835127	1.083962	1.1544788	1.0012681	0.9123893	0.8628348	1.2765598	1.283122
Phase-1 RCT-123	1.0499054	1.0430107	0.8658757	1.165228	0.9785444	1.1859434	0.7506227	0.9969137	1.0086018	1.000708	1.1000788	1.036045	0.8956644	0.802762
Paraoxonase 1	0.5616092	0.8349367	0.6425852	0.5460751	0.9099295	0.888443	1.1134846	1.117527	1.0779529	0.6251723	0.5174809	0.777698	0.4711399	0.5081691
Organic anion transporter 3	0.7857837	1.4937088	1.1925417	1.5349834	1.2177473	1.1440436	0.6927095	0.9792429	0.8425502	1.0918518	1.182815	1.1941669	0.759185	0.6428167
N-hydroxy-2-acetylaminofluorene	0.822546	1.047384	0.7946416	1.050825	0.9882862	0.9928346	1.1651704	1.2734567	1.3237303	0.8021085	0.8011469	1.114881	0.2021088	0.5063289
sulfoltransferase (ST1C1)	1.5783515	1.2128258	1.3669189	0.9892299	0.6904718	1.1376752	0.822519	0.8697059	0.9569098	0.9658753	1.0217527	1.0190204	1.7162081	2.1971838
Insulin-like growth factor binding protein 3	0.8009314	0.5635392	0.613178	0.5628117	0.974935	0.6519109	1.1858706	1.1590837	0.8750337	0.83332	0.6739986	0.8327453	0.6289974	0.6299705
ID-1	1.2613565	1.179812	1.383273	1.1593479	1.1525378	1.1378869	1.011096	0.7902851	0.9996827	1.27314	1.1379935	1.0786939	1.8451518	1.6511902
Hepatic lipase	1.0255903	0.9140714	0.8114616	1.2050674	0.8961931	0.822174	0.9864998	1.113921	0.8597364	0.6769535	0.4063112	1.0597035	0.4280441	0.5238854
Heme oxygenase	1.4459096	1.1873052	1.287448	1.9862523	1.4924505	1.7022004	1.3555529	0.9111992	1.0706968	1.0146351	0.7345184	0.8563094	1.479942	2.1035345
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.9214622	1.0908736	0.8289661	1.0384893	0.8604744	1.0107527	1.0045701	1.2549498	1.1335163	1.1670045	1.1187329	0.9149723	0.350353	0.528926
Epidermal growth factor	2.1487205	1.0922012	1.803722	0.9463714	0.96927	1.1534176	0.9163413	0.9781992	1.1796695	0.9234029	0.8602191	0.849893	0.8731689	0.8649455
C-myc	1.2253023	1.0831221	1.1514273	1.2483193	0.7258792	1.3030969	0.868571	0.948236	2.1428418	0.8582542	0.7990935	0.8681663	2.8966634	1.8456204
Carbonic anhydrase III	0.4534799	0.3031558	0.4350895	0.5052283	0.3188921	1.824037	1.194391	1.5974911	1.1194391	0.4051793	0.6725298	0.736232	0.0873532	0.2614988
Beta-actin	1.1588799	0.8151919	0.9507786	0.6861991	0.4796252	0.5812667	0.9648956	1.1465247	0.8235149	0.5805013	0.7854807	0.6145368	1.3863703	1.3947511
Bax (alpha)	0.4469287	1.1551467	0.5194989	1.0758749	0.8386138	0.9943155	0.9622003	0.9176671	0.9759055	1.0446929	1.1944269	1.093298	1.3595716	1.5977923
Alpha 1 - inhibitor III	0.4112299	0.3553737	0.3668569	0.3990438	0.8303577	0.4334281	0.5835939	1.0218555	0.6981795	0.5702699	0.3634046	0.9085642	0.4167133	0.3635373
60S ribosomal protein L6	1.2534028	0.8302401	1.3567817	0.8240581	1.1452299	0.9096289	1.0120591	1.0120591	1.0120591	1.0916188	0.8335154	1.3241475	1.7186474	0.7878104
Phase-1 RCT-117	0.9376597	0.9134932	1.213158	0.8045321	0.7207187	0.7801098	1.5250432	0.9552888	0.8062916	0.9277731	0.8335928	0.7400879	0.3032405	0.4666673
Phase-1 RCT-102	0.4588046	0.9512948	0.4304971	1.0819418	1.0665034	0.8520081	0.7791073	0.8438851	1.2655032	0.8194567	0.6615052	1.0957991	0.3032405	0.4666673
3-hydroxyisobutyrate dehydrogenase	0.9948187	0.9517555	0.7363054	0.9151687	0.9640878	1.2532411	1.2434905	1.158142	0.8928415	0.7976142	0.904689	0.4631928	0.5492526	0.5492526
ATPase inhibitor (rat mitochondrial IF-1 protein)	1.0888848	0.8717527	0.7811507	0.7080303	1.0793669	0.7753128	0.9808198	1.2819902	1.0636522	0.8367152	0.7873751	0.4249882	0.5289952	0.5289952
Alpha-2-macroglobulin	0.6086322	1.6362113	0.8673278	1.5497015	2.7481077	1.3945707	0.6936838	0.7587047	0.9390821	34.372776	26.288652	15.052653	9.551549	2.8563401
Phase-1 RCT-137	1.4324815	0.9067442	1.1420352	0.5969604	0.8135224	0.895694	1.2189623	1.2581524	0.6091464	0.6698488	0.9164694	0.5393679	0.4995779	0.4995779
Phase-1 RCT-252	0.6148788	0.8520103	0.510931	0.8896834	0.7217438	0.6767417	1.2439872	1.3389666	1.210047	0.5898305	0.6499562	0.7342437	0.5730206	0.3898135
Phase-1 RCT-65	1.1094252	1.0667254	1.0461574	0.8878359	0.9705321	1.2157156	1.1984607	1.4172748	1.3983415	1.2834874	1.1699543	1.3543745	1.6250447	1.6250447
Liver fatty acid binding protein	0.7253481	0.5528908	0.4277342	0.4003002	0.8858043	1.0042106	1.0051203	0.7508866	0.7552847	0.7552847	0.7552847	0.7552847	0.7552847	0.7552847
Carbamyl phosphate synthetase I	0.6121652	0.8511922	0.6115704	0.6434848	0.7802545	0.5541058	1.2261547	1.4237497	1.276245	0.5902479	0.6988373	0.7694767	0.5301982	0.3750241
C-Jun	1.063707	1.1387674	1.0363014	0.9348393	0.8071801	0.9310234	1.2322105	0.958294	1.3470756	0.8807218	0.8821594	1.0948552	4.1824727	6.5412016
Transferrin	0.631299	0.2887699	0.2856779	0.2709392	0.6029666	0.3738904	1.0732259	1.2006359	0.7901817	0.6691372	0.6484093	0.8291809	0.2605753	0.3533776
Aflatoxin B1 aldehyde reductase	0.8084773	0.534627	0.9690632	0.5384136	0.538252	0.6043368	0.7807789	0.8987738	0.8878503	0.5200019	0.4532877	0.4691462	0.8624408	0.5412217
Phase-1 RCT-15	1.2940352	1.1343211	1.1520113	1.1197892	0.9398264	1.0120585	1.0873644	1.2945489	0.9845755	0.9020818	0.8061391	0.4769562	0.8292748	0.3523279
Insulin-like growth factor I	0.7804681	0.47297	0.5419979	0.4713021	0.9080924	0.6112455	1.2218028	1.0739185	1.1564685	0.616581	0.5708982	0.8713076	0.6021556	0.5058445
Sodium/bile acid cotransporter	0.3737859	0.9454246	0.4063532	0.9011838	1.0466179	0.8405446	1.0467303	1.1232232	1.1564685	0.616581	0.5708982	0.8713076	0.6021556	0.5058445
Organic cation transporter 3	1.393602	0.9723004	1.4274712	0.9902011	1.1296357	0.9844189	1.050618	0.9882796	0.9907386	1.0858935	1.0141071	0.9312543	1.3428649	1.1836398
Gadd153	1.2487975	1.1220376	1.2635377	1.0411322	0.9968673	0.4850044	0.9811386	0.9195063	0.9592227	1.1672707	1.1495482	0.9845557	0.9947393	1.3535042
Phase-1 RCT-109	1.233815	1.0833348	1.1809543	0.7108585	0.9830119	0.8203491	0.9978514	0.8904433	1.0015383	0.9676464	0.9998475	0.8106324	1.1541326	0.9714038
Phase-1 RCT-88	0.7434347	1.7289752	0.8909372	0.8759294	1.2718333	1.1560131	1.241212	1.0079993	1.0481205	0.9663817	1.1775594	1.2058598	0.7571328	0.7798724
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.2288883	0.9104772	1.4538774	0.820419	0.7575641	0.858888	0.9641403	0.8951305	1.0422952	0.8081126	0.9006992	0.8135094	1.2910385	0.8672893
Glucose-regulated protein 78	2.8255053	2.4332201	2.0646083	1.0027112	1.0471576	0.9741084	1.3228487	1.0920377	0.9706783	1.5877883	1.1940827	0.9887945	1.2423178	1.4958903
Ribosomal protein L13A	1.4832586	1.1533147	1.1264385	1.0077419	1.0623466	0.8942593	1.0844596	0.9489824	1.0436583	0.999066	1.0085459	0.8296368	1.2558315	0.9857935
Monocyte chemoattractant protein receptor (CCR2)	1.2564021	1.0113914	1.2922009	1.2203573	1.284533	1.2026086	0.7551482	0.7507481	0.8669027	1.0708545	1.1785018	1.1772205	1.3120111	1.2535402
Fas antigen	1.1714203	1.0756435	0.8526435	1.0978316	1.0605286	1.1664758	1.1220882	0.861832	1.0287813	1.178016	1.1850091	1.1224891	1.2441623	1.2612631
Calpain I heavy chain	1.2417411	1.0758182	1.0192733	1.170073	0.8662134	1.0368158	1.0368158	0.9399945	1.0042972	1.1248325	0.9388027	1.0371984	1.2169139	1.2169139
Uncoupling protein 2	1.1768991	1.0713855	1.2652908	1.2015157	1.0545256	0.9750941	0.9345383	0.8753982	0.8261144	0.8550376	0.9084612	0.90994	1.0997783	1.0995883

Phase-1 RCT-168	0.9718568	0.8515056	0.8948201	0.8850035	0.909271	0.9892502	1.347934	1.2113774	1.4237919	1.3341461	1.1300302	1.2070315	0.8385453	0.9500386
Phase-1 RCT-154	1.0105553	0.9811906	1.1205436	0.8420867	1.0086339	0.9913636	1.0236444	0.9260086	1.0449244	1.0895142	1.2774626	0.94463	1.0681405	1.0714875
Superoxide dismutase Mn	1.488042	3.506713	0.892983	1.285663	0.929553	0.7700395	1.3846544	1.0474403	1.0644368	1.209133	1.517853	0.9384253	2.3443198	1.9280921
Phase-1 RCT-214	1.4558505	0.9740449	1.0384117	0.9943737	1.137895	1.1530548	0.7116138	0.7878216	0.9310579	0.9902341	0.9880864	1.111068	0.6796362	0.7879437
Phase-1 RCT-225	1.436246	1.0092889	1.008125	1.0091178	0.9830461	1.0380981	1.0156213	0.8648955	0.8610451	0.5451729	1.528862	0.7126507	1.028194	1.7131829
Phase-1 RCT-181	0.8511692	0.7412931	0.9097847	0.7813857	1.005116	0.8620614	0.9598826	0.7317414	1.0237112	1.1418462	1.0818194	0.9848255	0.8645125	0.8001847
Nucleoside diphosphate kinase beta	1.7193323	1.0877124	1.2787684	0.9281398	1.2568152	0.8444189	0.9145323	0.8761722	1.0204362	1.1135342	1.1775426	1.054133	1.0977099	1.248496
Isoform	0.676879	0.5256663	0.6859908	0.7489668	0.6136556	0.7489668	1.3332881	1.2487829	1.0538281	0.5114485	0.7659125	0.7908775	0.192284	0.2877547
Extracellular-signal-regulated kinase 1	1.3510758	1.0257547	1.7260716	1.0604762	1.2770531	1.033274	1.2244123	1.0638648	1.0688848	1.1064535	1.005352	0.8164751	1.2078929	1.0232292
Ribosomal protein L6	0.7843195	0.7035375	0.6195416	0.597329	0.9005162	0.7123568	1.4840431	1.2596482	1.056144	0.9398829	0.894636	0.9189517	0.8066032	0.603242
Aldehyde dehydrogenase, microsomal	1.571834	1.0149907	1.4867473	0.9160713	1.0369176	0.9755309	1.0650896	1.0654161	1.101488	0.8543395	0.9285175	0.8019966	1.3007476	1.3982884
p53	0.8199589	0.8605545	0.7895757	0.9044849	0.8737975	0.864529	0.7724565	0.8540638	0.8836891	0.7905749	0.8914962	0.9475409	0.9437185	0.7811502
Phase-1 RCT-239	1.7189877	1.0994583	1.8661312	1.7839762	1.1077511	1.1559607	0.7262856	0.7880808	0.9607267	1.0842766	1.118871	1.179175	2.5375724	2.5458276
Macrophage inflammatory protein-2 alpha	1.2960093	1.2473719	0.9048504	1.2871315	1.0734574	1.0135958	1.059774	0.9526317	0.9266123	1.0498761	1.0793182	0.9424198	1.1841584	1.343348
IgE binding protein	1.4751191	1.0431721	1.7260716	1.1589204	0.9556348	1.066581	0.8361041	1.0685853	1.0566351	0.8954053	0.9858825	0.8641006	1.500363	1.4831738
Phase-1 RCT-205	0.896231	1.0006887	0.9345872	1.0849781	1.1741955	0.9064989	0.8408794	0.9424139	0.9342061	1.3887467	1.7288536	0.8946036	1.126574	1.0606791
Melanoma-associated antigen ME491	1.0475996	1.0915982	1.2243582	1.192073	1.074609	1.1910331	0.6352	0.8527405	0.8568331	0.9974814	1.05202	1.0737347	2.1078625	3.7647343
Phase-1 RCT-242	2.2847683	0.5152126	1.9754124	0.6795118	0.8935996	0.6215389	1.0617068	1.2251207	1.1664431	1.0463818	1.0029914	0.791374	1.2667087	0.8769494
Endonase alpha	1.1974297	0.8963423	1.128062	0.9615769	1.0056243	0.8072347	1.0183958	0.9292551	0.9739209	0.9707844	1.02908	0.7933047	1.2212476	1.057061
Thymosin beta-10	0.8394011	0.8409223	0.6481364	0.9403794	1.0026492	1.1013858	1.113406	0.8745745	0.9226413	1.0041983	1.1043767	1.1232936	1.3311848	1.2950934
Cofilin	1.1105323	1.0769106	1.1485449	1.0026492	1.1013858	1.113406	0.8745745	0.9226413	0.9226413	1.0041983	1.1043767	1.1232936	1.3311848	1.2950934
Carbamyl reductase	1.3811922	0.9661044	1.5602373	0.8280167	0.8945473	0.9504494	0.861832	0.9337852	1.0489523	1.076368	1.0251948	1.0744746	1.1940894	1.0528316
MAP kinase kinase	0.9921186	1.1239445	1.0492289	1.0054308	1.2697009	1.1342592	1.0508149	0.9912927	1.041339	1.174185	1.0428789	0.9750128	1.0252061	1.0528316
Phase-1 RCT-162	0.9880831	1.1420139	0.9626055	0.946396	1.0347376	0.9567167	0.8382592	0.9405592	0.9267927	0.9396274	1.009357	1.0519298	1.0519298	1.2393016
Phase-1 RCT-72	1.3640513	1.2027864	1.1348592	0.863822	1.6345536	1.3208898	1.147658	1.21466	1.2606599	1.2228048	0.9492608	1.0948827	1.0548927	1.1854339
Ribosomal protein S8	0.9813408	1.0749782	1.0816242	1.1710718	1.0852809	1.2903746	0.9085429	1.0568753	1.0712988	0.8844685	0.8340799	0.9471925	1.2120155	1.1854339
Proliferating cell nuclear antigen gene	2.2882463	0.9227484	1.241424	0.893103	1.052252	1.0895513	0.8910543	1.2469215	0.8987751	1.0454228	1.2283906	1.1743863	0.9595991	0.9595991
Phase-1 RCT-192	1.487841	0.5362631	1.1714851	0.7433963	0.7802769	0.697037	0.9847685	1.1738759	1.1615682	1.0670236	0.9245093	0.8638147	1.2784944	0.9227232
ikB-a	2.7517867	1.2329273	1.2969363	0.8325558	0.8867677	0.9106964	0.7283608	0.8801769	1.0072074	0.9441097	1.1292355	0.9172252	0.8816609	1.0033368
Endogenous retroviral sequence, 5' and 3' LTR	1.0543014	1.1224242	1.0786893	1.1504903	1.1590062	1.1071378	0.9312566	1.1018976	1.0684204	1.0606079	1.0345812	0.9012753	1.0136738	0.9576539
Phase-1 RCT-37	1.1948476	0.9059116	0.9746371	1.2955819	0.9946038	1.108152	1.0012762	1.2382985	1.0466099	1.0554758	1.0849526	0.9057894	0.7767853	0.6894357
Matrix metalloproteinase-1	0.7755783	1.1054544	0.8352638	1.1674308	1.0757862	1.1428696	0.9706492	0.9825627	1.214937	1.5162739	1.4245207	1.122184	1.4286355	1.6611838
Cyclin G	1.3270873	0.97	1.1967767	0.9131655	0.8849738	0.9229431	1.2002832	1.0947127	1.1401175	1.1456436	1.1414534	1.0558777	1.0203735	0.8848288
DNA polymerase beta	0.9797789	1.0205814	1.06830614	1.1461736	1.058452	1.2058762	0.8578207	0.8733294	0.9557945	0.8780219	0.8217835	0.9253098	0.9599234	1.0055574
Phase-1 RCT-127	0.7485015	1.0400575	1.3277781	0.9303657	1.0131334	0.8597302	0.8270024	0.8308448	1.0277688	1.0233074	0.8894162	0.8243971	4.00809	3.4538848
Multidrug resistant protein-2	1.3249532	0.9872906	1.5865046	1.037402	0.8036239	0.8766888	0.9671615	0.965985	1.0215555	0.7332107	0.8478302	0.7787006	1.3421649	0.8415982
Ribosomal protein S9	1.4580699	0.258869	1.0531036	1.0738146	0.8411411	1.0288844	1.1258504	0.9229129	1.0669523	1.1085943	1.0541285	1.0922709	1.0967145	1.2509782
Phase-1 RCT-12	1.9180927	1.1745454	1.0745449	1.0179892	0.7676859	0.9845173	1.1768668	0.9050277	1.013172	1.209421	1.0307627	1.0623822	1.2549764	1.4095595
Beta-tubulin, class I	0.831472	0.6031745	0.5637889	0.8016048	0.7109531	0.599299	1.2282593	1.3823186	1.2348812	0.8309221	0.802727	0.8253072	1.4016197	1.0604713
Argininosuccinate lyase	1.0820181	0.7111693	0.8009331	0.5896128	0.9081195	0.7721049	1.2716962	0.8325455	1.190877	0.8460594	0.9092454	0.7289212	1.0457118	0.8409534
Elongation factor-1 alpha	1.2196379	1.3101288	1.1220676	1.15589	1.1424786	0.680274	0.9093583	0.7852604	0.9818007	1.0473078	1.0428748	1.8226064	2.1779242	2.1779242
Phase-1 RCT-55	1.0126565	1.058427	1.4079093	1.2096477	1.2984143	1.2204634	0.7845062	0.7368042	0.7780265	0.9600059	1.1748543	1.1202782	1.1797495	1.5470227
Macrophage inflammatory protein-1 alpha	0.7950777	0.9876363	0.8454319	0.8813387	0.7116705	0.8005546	1.0926784	0.9631505	0.9128817	1.1778839	1.2180326	0.9354211	1.5805224	1.3348665
C-H-ras	0.8298513	1.0866611	0.7939226	1.0598531	1.018352	1.0804597	0.8346425	0.8240523	0.8602699	0.9307888	0.8466981	0.8675641	3.6975641	3.814823
Multidrug resistant protein-1	1.4727225	0.8791378	1.1480366	0.7338664	1.2204411	0.8325869	1.321887	1.1729101	1.127308	1.0891328	0.9343121	0.9962088	0.830163	0.830163
T-cell cytochrome	0.9276577	0.5706543	0.7474245	0.5841115	0.8436048	0.5805812	1.1367952	1.3528298	1.1403501	0.8409537	0.8706481	0.8352439	0.566964	0.6588851
Phase-1 RCT-185	0.9700889	0.9603687	0.873754	0.8533885	0.9033963	0.8567354	1.1712984	1.12175984	0.9666016	0.8664042	0.9054251	0.9387638	0.8444185	0.8444185
25-DX	1.1939623	1.3006818	1.0947155	1.0015463	0.8522387	0.9434549	1.0021678	1.0774491	1.0750184	1.0580879	1.0495092	1.0495092	1.237866	1.2532275
Ref-1	0.7388774	0.5098157	0.6948974	0.4364303	0.6350741	0.5293385	1.2366505	1.0614648	0.9633781	1.1462439	1.0424675	0.9057154	0.8120833	0.712142
Apolipoprotein CIII														

NADPH quinone oxidoreductase-1 (DT-diaphorase)	1.2342807	1.1618181	0.9982382	1.0403365	0.8216108	0.7630644	1.5516554	1.1967379	0.8914231	1.7038383	0.8888265	1.4750458	1.5951184	1.27731
	1.0070374	1.1437368	0.9443246	1.3722893	1.1649499	1.1174672	0.8888143	0.9266922	1.0412067	0.8767597	0.9030135	0.9170635	1.5084109	1.4707555
Pyruvate kinase, muscle														
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Table 35. Expression Data for 24 Hour Timepoint (1)																			
Compound/Dose (2)	ANIT 60	APAP 1000	APAP 1000	APAP 1000	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	CCL4 250	CCL4 250
Animal Number (3)	1656	2134	2135	2136	2346	2347	2348	2334	2335	2336	2044	2045	2046	2047	2048	2049	2050	2051	2052
Liver Toxicity Necrosis Classification (4)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Gene Name (5)	0.7892923	0.7808704	0.6313698	0.4383601	0.83516	0.7712085	0.5321541	0.5752027	0.6921904	0.6621078	0.7273467	0.6213893	0.7615805	0.5578116					
Phase-1 RCT-78	2.783659	1.8582921	1.5787565	10.268378	6.3413463	2.562591	6.8288484	4.1591353	3.7512927	3.3873024	1.2085281	1.7285603	1.6833653	2.5565161					
Gamma-actin, cytoplasmic	0.5744017	1.1557255	0.8292568	0.5378188	0.65456	0.8986663	0.4634787	0.4285422	0.6078525	0.8258547	0.8258525	0.8948065	0.7847183	0.5748441					
Matrin F/G	2.670814	0.9303169	0.8117558	1.7251328	2.7530024	0.8559638	5.729396	3.93516	2.1527803	2.0759542	1.0779959	1.3184633	1.451203	1.6967394					
Zinc finger protein	2.283068	1.074807	1.339568	4.1737027	2.8960137	0.847506	2.3439903	3.4436734	2.803804	1.9413538	1.9321318	2.8458443	1.649104	4.7689608					
Cathepsin L, sequence 2	1.8602532	0.8220603	1.3169384	2.7411542	3.9154673	0.942708	3.217715	3.1520169	4.261273	2.9653523	2.248084	2.5187516	1.8911576	2.3080787					
Gadd45	1.1867278	0.9816055	1.1773083	2.422509	0.30254192	0.9767266	3.379373	3.0924978	1.9597641	1.8462274	1.4606414	1.8941183	1.338319	1.7534618					
Phase-1 RCT-144	1.373848	1.2001864	1.5215938	2.3350213	1.6164194	1.1105763	2.2340593	2.7501855	1.9597641	1.8462274	1.4606414	1.8941183	1.338319	1.7534618					
Phase-1 RCT-145	2.7353585	1.054244	1.032271	2.637211	1.8690739	0.8449889	3.9277573	2.437748	2.5367506	1.7603701	1.1990254	1.3749977	1.2915208	1.7924391					
Phase-1 RCT-50	0.5628777	0.8478241	0.6327204	0.3995366	0.5270688	1.0341121	0.4897167	0.4760936	0.6497421	0.7002124	0.6411897	0.5980486	0.8062883	0.3008638					
Phase-1 RCT-82	0.7949664	0.8349818	0.878441	0.3345693	0.4414944	1.1624697	0.4138589	0.4543584	0.4619704	0.4722505	0.7737981	0.5781484	0.8880977	0.4605808					
Phase-1 RCT-89	1.4153996	1.27887	1.3397921	2.1931944	1.4373559	1.2539016	1.5923091	1.7873095	1.4164262	1.4164262	1.6601833	1.9233764	1.7558154	2.1649923					
14-3-3 zeta	0.487532	0.8585791	0.7809165	0.4206284	0.8053063	0.7633024	0.8226238	0.7266259	0.7237747	0.785397	0.7867314	0.5810335	0.7390643	0.4372683					
Dynamin-1 (D100)																			
Insulin-like growth factor binding protein 1	2.4912002	1.5541166	1.8837394	3.7856872	6.49358	1.353118	3.955229	2.3378346	2.3525052	1.6197916	1.4225075	1.6904492	1.6052614	2.908188					
L-glutono-gamma-lactone oxidase	0.4752978	0.5988902	0.4215989	0.1969441	0.2873403	0.7202513	0.2090522	0.30361	0.3259944	0.3524514	0.545702	0.3449596	0.5416257	0.2873588					
Omitrine decarboxylase	1.8256718	1.9183862	2.1028938	3.0924182	2.7821546	1.4677541	2.287528	2.9204438	2.9021356	2.0018406	1.2287628	1.5142168	1.4534425	2.0043225					
PAR interacting protein	1.1181813	1.1032678	1.4784549	2.2465057	2.2940099	1.2070475	2.9862342	3.5541978	2.9899216	2.3397791	1.2514662	1.1780348	1.780342	1.735508					
Phase-1 RCT-128	0.3382263	0.7458431	0.884723	0.2366052	0.8250362	1.3068181	0.5395185	0.5684197	0.5839549	0.600258	0.7659346	0.5352064	0.6882388	0.3094651					
Phase-1 RCT-180	1.5800836	1.3623645	1.5232956	1.8385341	1.2648928	2.252742	1.5028497	1.726077	1.4324504	1.1033005	1.3904638	1.1378135	1.2813755						
Phase-1 RCT-182	0.5578945	0.6489257	0.5329457	0.5329457	1.3408315	1.3008315	0.8679845	0.5041409	0.5600288	0.6572339	0.8337055	0.5663141	0.6692163	0.3597855					
Phase-1 RCT-207	1.3459661	1.2898468	1.3983328	2.7147381	2.037197	1.0707659	3.8262067	2.7535558	1.3598162	1.7780957	1.5105862	2.086857							
Phase-1 RCT-213	1.2331116	1.3166662	1.6070114	2.1341743	1.467437	1.0596248	1.3878842	2.020875	2.3159952	1.6054727	1.1618257	1.6575667	1.4549432	1.98844					
Phase-1 RCT-256	0.5427848	0.7770574	0.6184471	0.3034725	0.3659292	1.1538446	0.3281332	0.3752354	0.4195517	0.4306509	0.8142406	0.6795092	0.8008171	0.6382412					
Phase-1 RCT-258	1.138353	1.1984203	1.2893456	1.6283574	1.1859962	0.9631207	1.5418757	1.8499099	1.3859353	1.3581933	1.1403744	1.4555807	1.2219895	1.2564491					
Phase-1 RCT-284	0.5232891	0.4973377	0.4839335	0.3685766	0.8030628	1.0725478	0.4349538	0.3548316	0.4898993	0.3552938	0.5555585	0.3693471	0.5559151	0.2087074					
Phase-1 RCT-288	0.4629554	0.7960979	0.8118808	0.5952261	0.5824006	0.9650761	0.5270825	0.5889154	0.6220562	0.6733743	1.1132439	1.0335475	0.8693409	0.8136132					
Phase-1 RCT-38	0.4574211	0.7642786	0.6193053	0.2497753	0.3955931	1.013478	0.3601181	0.3510528	0.3914847	0.4038461	0.6979315	0.5772718	0.6385981	0.4221105					
Phase-1 RCT-39	0.5591697	0.8079268	0.6658564	0.4284167	0.3161279	1.05129	0.2601448	0.4296269	0.4023878	0.4535689	0.7514929	0.6811133	0.8099179	0.5871208					
Phase-1 RCT-68	1.2928806	1.0720022	1.113166	1.511115	1.2794008	0.9004853	2.1609843	1.5554736	1.3997668	1.3427883	1.3219073	1.5532203	1.2589144	1.8212497					
Phase-1 RCT-33	0.5616747	0.8252382	0.7278087	0.486732	0.4270199	0.9747322	0.4560216	0.6975865	0.5632752	0.5756664	0.8305995	0.7000065	0.9247553	0.4824108					
Phase-1 RCT-36	0.772467	0.9342113	0.8311461	0.7084122	0.7232555	0.7081659	0.8302805	0.8444893	0.7359124	0.7761704	0.9182826	0.8019386	0.9601123	0.6381915					
17-beta hydroxysteroid dehydrogenase, type 2	0.3821037	0.4475642	0.3153198	0.2024103	0.4318697	0.6348622	0.2940416	0.2857581	0.3547711	0.3188101	1.0544912	0.5508419	0.7560377	0.5476907					
Senescence marker protein-30	0.4066628	0.4098447	0.2444617	0.0982913	0.236371	0.8944992	0.1788024	0.1397427	0.1646018	0.1474399	0.7864495	0.5048464	0.8298255	0.2057194					
Ribosomal protein S17	1.0576639	1.2298427	2.0905206	2.4652085	2.853082	2.090768	2.4397662	2.610419	2.6124575	1.9685427	1.826195	2.6840375	1.287396	3.4611833					
Phase-1 RCT-83	0.4189972	0.6151087	0.4372851	0.3282761	0.6203949	0.7280333	0.5094547	0.6019073	0.6858119	0.9634226	0.8285174	0.5984726	0.5295879	0.324705					
Phase-1 RCT-49	1	0.9421895	1.094226	2.166884	1.5863192	0.7475788	2.3540325	2.4779747	2.0622022	1.6578346	1.5952172	1.9354672	1.9686404	2.4883013					
Phase-1 RCT-48	0.8140745	1.1263044	0.8761991	0.3881342	0.8911385	1.1764857	0.5359991	0.6157624	0.6329519	0.5825535	1.0240002	0.8904838	1.1131779	0.9803025					
Phase-1 RCT-40	0.5056445	0.7273161	0.6121556	0.3765631	0.5964158	1.1619401	0.5296916	0.4258537	0.4951533	0.490129	0.163147	0.8328768	0.943199	0.7596103					
Phase-1 RCT-296	0.2491641	0.4087412	0.2214505	0.3469629	0.3367844	0.689222	0.2707186	0.3833739	0.2700433	0.2604672	0.801514	0.3479689	0.5475328	0.2278402					
Phase-1 RCT-295	0.9300347	1.4092424	1.5863334	1.9928924	2.141201	1.9446859	1.9158632	1.7500443	2.0645165	1.5197922	1.511794	1.9423338	1.5794472	2.1096287					
Phase-1 RCT-281	0.4965149	0.8483654	0.6018884	0.3593634	0.8945057	1.1988659	0.8605057	0.6663093	0.7459804	0.7320361	0.8281298	0.7628834	0.770144	0.558074					
Phase-1 RCT-270	0.3633713	0.7657366	0.5836744	0.3204545	0.5515848	1.298134	0.4056625	0.445837	0.4777595	0.5280442	0.8129141	0.7105103	0.7193425	0.6099452					
Phase-1 RCT-241	1.9338969	1.1525435	1.0752367	2.3062351	2.0369186	0.8758043	2.5844228	2.0846985	1.1284157	1.1560014	1.1818763	1.7323387	1.208828	1.4213411					

Phase-1 RCT-181	1.5593768	1.4874156	1.4979564	2.5144691	1.728489	1.301535	2.139248	3.0565724	2.43825	2.0816464	1.1923363	1.285228	1.3083432	1.5659757
Phase-1 RCT-189	0.6071832	0.7548308	0.6613784	0.3340811	0.5687001	0.97497	0.5519768	0.3470025	0.5071123	0.4286053	0.9424717	0.8339378	0.9192929	0.8771604
Phase-1 RCT-179	1.0977058	1.0768157	1.3764162	2.4592183	2.97741	1.5803219	3.243633	3.810576	3.6206627	2.7567697	1.9186552	2.8708673	2.0589987	3.016563
Phase-1 RCT-152	1.4524632	1.2017066	1.9963161	2.355323	1.9570973	1.5423272	2.1089528	2.4927106	2.6961086	1.9295058	1.7666012	2.2064083	1.7363951	2.5763528
0.9052802	0.9078958	0.9830166	0.8830653	0.7151989	0.8627516	0.8648182	0.8598568	0.8599161	0.882353	0.9175123	0.8728483	0.8987571	0.8079407	0.8079407
Paraoxonase 1	0.5347782	0.5291951	0.4984778	0.3855524	0.8234946	0.8659638	0.5321815	0.5038861	0.5214765	0.6162599	0.4003085	0.4798027	0.2401041	0.2401041
Organic anion transporter 3	0.4603137	0.7554135	0.5816147	0.5460985	0.5568534	0.8209532	0.6551391	0.6715305	0.5793031	0.5761443	1.0507448	0.6634789	0.791854	0.6055329
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	0.3833998	0.591341	0.2920545	0.1775276	0.2617291	0.9447984	0.1936473	0.2489128	0.3123144	0.1862634	0.6938923	0.3774681	0.4406919	0.1918783
Integrin beta1	1.8082483	1.355662	1.6570011	3.0067053	1.4571774	0.9084934	1.4271086	1.3365039	1.3892285	1.0067835	1.8243084	2.457875	2.2698157	3.9932542
Insulin-like growth factor binding protein 3	0.8875309	0.5707315	0.5952323	0.4059143	0.5928716	0.9888482	0.4820632	0.5371005	0.5354	0.6565988	0.728156	0.5984591	0.8346462	0.6476178
ID-1	1.7284766	1.0038857	1.0378671	1.3883892	1.899624	1.2480067	1.7147872	1.4835703	1.3515973	1.483305	1.2739114	1.4758488	1.4039727	1.7147989
Hepatic lipase	0.5264224	0.523139	0.4276267	0.3047015	0.5689814	0.6288997	0.3937492	0.4554594	0.4118915	0.395276	0.4727285	0.4905481	0.4535916	0.2903165
Heme oxygenase	1.8073334	1.1162319	1.1186248	13.707437	12.234272	1.4714108	15.824095	17.7012	19.530051	12.751645	1.3645637	1.3536984	1.4587083	2.906816
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.4333482	0.6654703	0.3984554	0.2583559	0.6318381	1.0943241	0.3293659	0.3405508	0.4673865	0.3753173	0.7540149	0.4894777	0.497182	0.3135049
Epidermal growth factor	0.8612548	0.7556627	0.7312049	0.693541	0.7592656	0.7116759	0.8039903	0.8884125	0.8061791	0.8542899	0.9892204	0.8488313	0.975985	0.8326508
c-myc	2.0439997	1.1497276	1.4966376	3.2799692	2.472861	1.148288	2.8690804	3.041558	2.5274923	1.8903915	1.7368491	2.5379696	2.16114	2.5014267
Carbonic anhydrase III	0.1095224	0.3307657	0.1265729	0.0492532	0.1991069	0.734624	0.0572107	0.0350561	0.042924	0.0538435	0.4888808	0.1467115	0.2420225	0.0525565
Beta-actin	1.1298688	3.9961053	2.6481993	9.478647	2.485753	1.8162844	2.6084833	1.7813828	1.4456668	1.3981987	1.3508722	1.8152386	1.8298372	2.4132357
Bax (alpha)	1.2590859	1.2847227	1.3057766	1.6208344	1.53616	1.4138767	1.3273505	1.5367341	1.711964	1.3526209	1.1555653	1.7218331	1.6893425	1.8403347
Alpha 1 - inhibitor III	0.400532	0.4712479	0.4695987	0.2041065	0.5751943	0.7883048	0.3547583	0.4737818	0.4140768	0.3244623	0.4707834	0.3299195	0.4359179	0.2221123
60S ribosomal protein L8	1.3815914	1.3096782	2.123485	2.389527	2.092782	1.6295803	1.941105	2.2685843	2.1275542	1.6857885	1.9216183	2.717312	2.0010726	2.9744866
Phase-1 RCT-117	0.6353955	0.851885	0.6941977	0.3823803	0.6683247	0.7014307	0.5236648	0.5984308	0.6859626	0.7427272	0.9071781	0.3562244	0.3562244	0.3562244
Phase-1 RCT-102	0.2420064	0.4853712	0.3991945	0.273727	0.4860783	0.7413032	0.3845808	0.3051889	0.457208	0.4357874	0.2904431	0.3562244	0.3562244	0.3562244
3-hydroxyisobutyrate dehydrogenase	0.5042369	0.8092589	0.6875293	0.5180745	0.8750681	1.3389322	0.692699	0.6361281	0.6817229	0.6778889	0.9628395	0.896633	0.8497854	0.7285075
ATPase inhibitor (rat mitochondrial IF1 protein)	0.5540678	0.5233417	0.4906848	0.1857083	0.4241819	1.1981533	0.2625256	0.2879721	0.4119476	0.2455563	0.6559237	0.4848694	0.5600308	0.283981
Alpha-2-macroglobulin	5.5666614	0.5487143	0.8264345	0.3550618	0.5488293	0.5466803	0.4589775	0.4384453	0.3634355	0.3529321	0.5201425	0.3028302	0.4718215	0.2826875
Phase-1 RCT-137	0.5771772	0.7199864	0.8264345	0.5683963	0.8422374	1.021418	0.6023281	0.678141	0.6009818	0.6101241	0.7955334	0.8088439	0.8133885	0.488707
Phase-1 RCT-252	0.5765711	0.7804627	0.8729267	0.6756322	0.7880457	1.3286471	0.4957551	0.6303957	0.6008492	0.5781944	0.6941975	0.5683702	0.875272	0.9835436
Phase-1 RCT-65	1.3180266	1.4980252	1.392386	1.7829182	1.7056478	1.2296528	1.8561968	1.3086895	1.6228485	1.4601281	1.1004561	1.3644131	1.4342732	1.7559551
Liver fatty acid binding protein	0.790002	0.4243076	0.4268295	0.2289972	0.211338	0.6389216	0.2431244	0.2057973	0.2693358	0.2770498	0.8223031	0.3716559	0.8075453	0.2655559
Carbamyl phosphate synthetase I	0.5562502	0.7735812	0.7076374	0.6953312	0.6284852	1.2940874	0.4797069	0.4519629	0.5303042	0.5663119	0.6757115	0.5887523	0.8789212	1.0781185
c-Jun	2.479193	0.8084514	0.7668825	1.7165539	1.81939	1.494286	0.3241745	1.6165622	1.7982428	1.683729	1.5443863	1.4943736	1.6576997	2.5113218
Transferrin	0.42805	0.4270209	0.4937554	0.3400368	0.5179648	0.673577	0.2716097	0.2723222	0.3968705	0.3180504	0.5036249	0.3672069	0.5626366	0.1890438
Alatoin B1 aldehyde reductase	0.6831096	3.8868024	4.6068784	5.763395	17.990175	6.454098	10.386393	16.297672	12.890534	17.715115	1.0110922	1.10118	1.0548302	1.0228733
Phase-1 RCT-15	1.414294	1.3389817	1.3332016	1.4287503	2.352725	1.4210466	2.1551485	1.5146521	1.6600058	1.4127485	1.2006369	1.3214773	1.3862375	1.8812188
Insulin-like growth factor I	0.6504226	0.4598514	0.4564228	0.2201336	0.4044988	0.979214	0.4577577	0.4274809	0.4245945	0.3851804	0.6155213	0.5350848	0.7420573	0.531087
Sodium/bile acid cotransporter	0.504769	0.7684667	0.590177	0.8857865	0.3977225	0.8005587	0.5155731	0.4754221	0.4255522	0.5112941	0.812742	0.6198334	0.5913997	0.287901
Organic cation transporter 3	1.3100312	1.2145855	1.6628273	2.0643818	1.2409198	0.9546853	1.3648101	1.8386088	1.7346933	1.5131766	1.8688475	2.7241354	2.0412061	2.7727273
Gadd153	1.0169462	1.1502702	1.2340784	2.2302	3.3716147	1.5049493	2.2389214	2.0062053	2.3236132	1.4319441	2.959046	4.2869816	3.3988818	3.5861967
Phase-1 RCT-109	1.1113037	1.4227433	2.054258	2.2905674	1.8951125	1.6514163	2.229809	2.7550473	2.622863	2.1088378	1.4029858	1.5362856	1.6456294	2.334362
Phase-1 RCT-88	1.0261106	0.5934322	0.6891446	0.4013787	0.7127862	0.7500188	0.8397243	0.8534348	0.8179628	0.6949048	0.7287021	0.8002584	0.7079528	0.3625099
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.340387	0.9548995	1.2822496	1.5581443	1.181682	0.8018861	1.2198864	1.418495	1.2286589	1.1267122	1.7646707	2.2154086	1.7520143	2.1827117
Glucose-regulated protein 78	1.927087	1.9487857	2.01674	1.914075	1.4046295	1.6247623	1.6357174	2.4844098	1.5967646	1.2436281	2.3805609	3.3145213	2.1784077	2.8014333
Ribosomal protein L13A	1.0597126	1.6068325	2.3484156	2.58199	2.0141196	1.8109642	2.098743	2.626895	2.058864	1.4929867	1.6332285	1.9092027	2.5480644	
Monocyte chemoattractant protein receptor (CCR2)	1.2631332	1.1936095	1.2818788	1.7275008	1.1238714	0.9834967	1.0639407	1.1292648	1.2571979	1.0993181	1.9182367	2.565654	1.9805297	2.521138
Fas antigen	1.122157	1.770481	1.6183406	2.1619188	0.9198995	0.814214	1.1204231	1.1390218	0.9398895	1.0850316	1.52409	1.9021442	2.065827	2.1579413
Calpain I heavy chain	1.0833197	1.3471949	1.2624782	1.6923957	1.6149854	1.1124085	2.3545263	1.3790123	1.5433321	1.0533175	3.2110634	4.891623	3.199242	7.390908
Uncoupling protein 2	0.8867982	1.2012374	1.1107566	1.4618201	1.1171757	0.9873468	1.1027135	0.8595521	0.8863238	0.9150327	1.5685462	2.0801551	2.0898866	2.458792

Phase-1 RCT-168	0.9668907	0.8054422	0.740085	0.4710133	0.6820972	0.7885584	0.5664898	0.6472492	0.7333869	0.7518598	0.7762743	0.7212805	0.6865891	0.4996205
Phase-1 RCT-154	1.0281553	1.1261101	1.3269429	2.275595	0.9885927	1.123611	1.3041155	1.4500433	1.4066342	1.177606	1.7900582	2.0882967	1.4901333	2.0881333
Superoxide dismutase Mn	1.4414591	1.2740895	1.1780089	1.9311266	2.6753087	1.6109365	2.0597865	2.0597865	1.9492795	1.6398455	2.0165943	2.8676095	2.311271	3.2006366
Phase-1 RCT-214	0.950311	0.7129448	0.7249225	0.4325742	0.4191459	0.7327386	0.3835465	0.3482718	0.4672513	0.4866954	0.8729123	0.7017478	0.8794359	0.3832869
Phase-1 RCT-225	1.3423305	1.2314672	1.6224287	2.506791	3.0578728	1.4904089	5.0768408	5.508353	2.5713568	2.0740738	2.5432196	4.2953467	2.862378	5.27724
Phase-1 RCT-181	0.8490373	0.8223343	0.911076	0.6749479	0.8932419	0.9997166	0.8526726	0.8940422	0.8573403	0.8822259	0.7945542	0.6792496	0.8048474	0.5870315
Nucleoside diphosphate kinase beta isoform	1.2140932	1.1852125	1.5279102	1.5158077	1.8620404	1.5043029	1.5406747	1.5954394	1.4057313	1.1744483	1.902188	2.390527	1.9011159	3.0886514
Extracellular-signal-regulated kinase 1	0.1539685	0.4073488	0.2809656	1.4137326	1.4518502	0.541703	0.498213	0.498213	0.6802834	0.8466522	0.5877713	0.2783755	0.3886987	0.2470826
Ribosomal protein L6	1.2886127	1.3783004	1.9784078	2.3206882	2.9642246	2.14093	2.5383334	2.3998828	2.6832498	1.9124365	2.2052822	1.9591787	2.2812003	2.8812003
Aldehyde dehydrogenase, microsomal	0.9248851	0.9181349	0.9006553	0.8021829	0.802783	0.7071761	0.4819529	0.737977	0.721182	0.8002862	0.9071515	0.7147374	0.8689016	0.5509729
p53	1.1080066	0.8978914	1.1756155	1.5839317	1.482548	1.1330049	1.7004056	1.4421312	1.3626181	1.1512202	1.2743765	1.6323931	1.2273697	1.2768244
Phase-1 RCT-239	0.8346975	1.2476604	1.3921679	0.6524429	0.8165832	0.6827516	0.74724	0.8103561	0.9172621	0.91728952	0.4546853	0.6857475	0.4769034	0.4769034
Macrophage inflammatory protein-2 alpha	2.2680868	0.9978087	1.0500547	2.499662	2.9151098	1.2480948	4.825348	1.2891608	1.2484385	1.1192974	1.6413306	2.3680766	2.2864835	3.227502
IgE binding protein	0.9520804	1.117225	1.130881	1.5275583	1.4561076	1.4163593	3.1583354	1.3620456	1.3220685	1.097769	2.3807302	2.453382	2.3325507	3.1058318
Phase-1 RCT-205	1.3163437	1.0250242	1.060911	1.7927418	1.3004432	0.817663	2.0407675	1.553151	1.5094598	1.3233093	1.2626331	1.7128332	1.2389712	1.6625992
Melanoma-associated antigen ME491	1.1600649	1.010508	1.1142567	1.6561793	1.3884083	0.9209077	1.6703471	1.3275531	1.1962161	0.9172489	1.8410482	2.1732683	1.6214827	3.367168
Phase-1 RCT-242	2.0941517	1.0413784	1.3467473	1.9358487	0.937412	0.6155365	1.6592388	1.250377	1.1579976	1.1252191	1.3369702	1.7030543	1.3996145	2.2257814
Enolase alpha	1.2345902	1.3821361	2.6187184	2.30822	2.4191656	1.5347193	1.711871	1.609621	1.7265801	1.2798488	1.5611404	2.6199589	2.0889735	2.5944748
Thymosin beta-10	0.9687337	1.2853549	1.3834659	1.7880654	1.3312045	1.3671318	1.3729183	1.1893088	1.5480845	1.2778149	1.4730594	1.8665378	1.8632578	2.247151
Cofilin	1.1302248	0.8060669	0.9679489	1.2610892	2.9232223	2.0638004	2.9351072	2.6319299	2.0495528	1.7688912	1.4253789	1.7304277	1.3533752	1.52941
Carbonyl reductase	1.2493975	1.2182206	1.1435828	1.9915422	1.6783226	1.0354006	1.3749789	1.6399505	1.1494583	1.2750719	1.3970004	1.4582615	1.5401709	1.5831045
MAP kinase kinase	1.1272953	1.0170803	1.243314	1.3610886	1.2897535	1.1657861	1.0921427	1.160479	1.319899	1.2237319	1.2327776	1.5711792	1.4042862	1.6659124
Phase-1 RCT-182	1.0509548	1.0332949	1.4218295	1.4760032	1.1287767	1.0488986	1.2562795	1.5536821	1.6090195	1.2900134	1.5717856	2.0801594	1.6542228	2.3585954
Phase-1 RCT-72	1.1354774	1.1274544	1.0831252	1.6762582	1.0781714	0.8665959	1.4422833	1.4790872	1.4790872	1.4229998	1.4337312	1.8212488	1.552875	2.5087773
Ribosomal protein S8	1.081011	1.1406254	1.8639046	2.0533908	2.6598045	2.215958	2.3907204	2.4551883	2.4836323	1.7998818	1.671563	2.63998	2.056113	2.9762309
Proliferating cell nuclear antigen gene	1.0237087	0.8849356	0.9137754	1.6138308	1.304081	0.7641907	1.2227778	1.2340511	1.1312876	1.1130138	1.5914425	1.6220983	1.7251031	1.855107
Phase-1 RCT-192	1.0033683	1.0680824	1.8123558	1.8123558	1.3094614	1.2506007	1.596408	1.830081	1.8559958	1.453905	1.708817	2.3180552	2.20798	2.7668936
IkB-a	1.1590693	1.2678796	1.6619941	1.7596643	2.5236042	1.2421546	2.260655	2.0875418	2.405251	1.739983	1.4321122	2.1734578	1.8807915	2.7720058
Endogenous retroviral sequence, 5' and 3' LTR	1.0850494	1.113703	1.1120529	1.6476983	1.8541503	1.5852102	2.5818267	2.6395524	1.482342	1.0769471	1.5203727	2.199482	1.8891419	2.8587914
Phase-1 RCT-37	1.069543	1.2586483	1.5245445	1.7040033	1.1191857	0.9672426	1.2238449	1.5688986	1.7192701	1.2856841	1.5247991	1.8626588	1.7855766	2.236209
Matrix metalloproteinase-1	0.7107794	1.4103115	1.5858286	2.468833	1.5846175	1.2634045	1.6283784	1.8037354	1.4908485	1.3651168	1.3976161	1.9154376	1.3202015	2.7234108
Orylin G	1.6551875	1.2088612	1.5694448	3.0281594	2.8484836	1.0317868	1.7417202	1.8202311	1.857407	1.29541	2.0753772	3.015346	2.5912278	4.071453
DNA polymerase beta	0.9724908	0.8811477	1.2231832	1.5396671	1.3693786	1.2056513	1.3069941	1.5408971	1.4638817	1.0994608	1.3717923	1.6941034	1.3432182	1.7198708
Phase-1 RCT-127	0.9686277	0.957852	0.9900186	1.4723707	1.2133987	0.734734	1.804941	1.7495538	1.5254116	1.2732198	2.1441424	2.1044838	2.0956986	2.044238
Multidrug resistant protein-2	3.757892	0.8502675	0.9750508	1.8589225	1.8614948	1.2608433	1.6586137	1.8866477	1.4525287	1.347097	1.2346561	1.9368812	1.6728492	2.0256555
Ribosomal protein S9	1.244653	1.0825168	1.5427363	1.6151308	1.820619	1.2715254	1.5436891	1.8866477	1.4525287	1.347097	1.2346561	1.9368812	1.6728492	2.0256555
Phase-1 RCT-12	1.0487278	1.3183348	1.084241	1.8844128	1.1355038	1.0028685	1.3398657	1.767338	1.5816801	1.4778899	2.018425	2.1274397	2.136595	3.4459193
Beta-tubulin, class I	1.1703591	1.6400553	1.4552431	4.005797	2.6875942	1.7822949	2.3386688	2.2925663	2.1714432	1.9644219	2.0693703	3.1523101	2.5183637	4.3570747
Argininosuccinate lyase	1.4711678	1.2045684	1.905453	2.8725478	2.651008	1.7640364	2.1451428	2.2517676	2.6117756	1.8981912	1.3301924	1.3644207	1.85502	1.4428127
Elongation factor-1 alpha	0.9303584	1.174363	1.5331705	1.7455474	2.0541768	1.7279829	1.7998946	2.2146778	2.0406666	1.5377442	1.855479	2.3757195	1.8430456	2.9945145
Phase-1 RCT-55	1.7594391	1.5802335	1.284871	4.823493	1.5138822	0.7434616	1.071235	1.3184384	1.3526459	1.3015441	1.0867561	1.4820198	1.5222786	2.465852
Macrophage inflammatory protein-1 alpha	1.2852738	1.1579158	1.1376076	1.6846969	1.6349049	1.1968815	4.726845	1.204815	1.0863261	1.2111582	1.3438146	2.5230424	1.8127491	2.3230802
c-H-ras	1.3179317	1.11818	1.0887729	0.9092059	1.3103398	1.3002511	2.303609	1.2833016	1.242251	1.0674042	1.2237315	1.3737329	1.2664496	1.633201
Multidrug resistant protein-1	3.4660316	1.2409593	1.2022458	1.889119	0.6573524	1.4860818	2.0744915	1.8535577	2.0215484	1.467586	1.7051295	2.147129	2.101333	2.671373
T-cell cyclophilin	0.9499663	0.8845878	1.3215508	1.4912754	1.6295474	1.48192	1.520338	1.7381636	1.6747843	1.1900078	1.6170708	1.6543496	1.2602824	1.6785188
Phase-1 RCT-185	0.6019089	0.5075305	0.4368403	0.3225052	1.0430269	1.2157815	0.8016344	0.4785779	0.5230842	0.4984501	0.8182678	0.6041049	0.5918355	0.3298372
25-DX	0.818226	1.303814	1.6668663	1.8967818	1.968819	1.7628139	1.7617819	3.5727897	2.8209481	2.6559925	0.9414572	0.903716	0.6580595	0.8903556
Ref-1	1.2543631	1.8495584	2.1119766	3.6170287	2.2013197	1.237567	2.060152	1.996689	2.1912048	1.7877178	1.2887827	1.5457338	1.1408149	1.272425
Apolipoprotein CIII	0.7830284	0.7020162	0.7529976	0.4639558	0.8587624	0.8125963	0.7006608	0.743817	0.6846948	0.7071428	0.6265475	0.5124873	0.6200687	2.465852

NADPH quinone oxidoreductase-1 (DT-diaphorase)	1.6788375	2.5108132	2.7155702	4.842179	8.310358	3.1774642	3.8901808	4.1818104	5.28765	3.9087167	0.9557092	0.9555533	0.6538534	0.4922178
Pyruvate kinase, muscle	1.4259942	1.0151789	0.9969	1.8328559	1.8138168	1.1898442	1.7775879	0.894228	1.0612112	0.9770895	1.6428086	2.2181032	2.1898622	3.638858
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).														
(2) Compound and dose abbreviations as in Table 1.														
(3) Individual animal number														
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed														
(5) Predictive gene (as in Table 5 and as included in Table 32)														

Table 35. Expression Data for 24 Hour Timepoint (1)													
Compound-Dose (2)	Animal Number (3)	CCL4 1000	CCL4 1000	DMN 20	DMN 20	DMN 20	DMN 20	LPS 8	LPS 8	LPS 8	LPS 8	LPS 8	LPS 8
Liver Toxicity Necrosis Classification (4)		2055	2056	1754	1755	1756	354	355	356	1244	1245	1246	1247
Gene Name (5)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Phase-1 RCT-78	0.5668493	0.5619331	0.6976997	0.7401357	0.6312013	0.5656012	0.7113856	0.9501752	0.696658	0.704728	0.6924388		
Gamma-actin, cytoplasmic	3.0457294	3.9200022	2.1755028	2.3586845	1.820712	8.400891	2.5559298	1.7433479	2.0713868	1.8656448	2.314668		
Malrin F/G	0.4180156	0.422768	0.8148238	0.6990309	0.6657567	0.7306065	0.6552458	0.5341573	0.5309179	0.5309179	0.5309179		
Zinc finger protein	2.9112082	2.2035537	2.262279	2.6996589	2.3322279	4.824339	1.4791515	1.481397	1.0913143	1.8628906	1.0597495		
Cathepsin L, sequence 2	5.0101705	7.0921208	2.908368	2.098257	2.4150183	4.4302115	2.4844918	2.0182147	5.017635	3.5478038	3.706211		
Gadd45	4.1851983	1.5416964	2.0483875	2.1846497	2.416181	2.7728345	1.1335245	1.0902935	2.2435951	2.4440973	1.897707		
Phase-1 RCT-144	2.8819334	2.2322137	1.4190725	1.5688545	1.4747944	1.6095161	1.4690024	1.0102489	2.2818992	2.7335503	1.9791094		
Phase-1 RCT-145	1.9948301	1.7656795	1.34305	1.4387385	1.341065	2.1710186	1.5780328	1.0256796	1.9883407	2.796879	1.557653		
Phase-1 RCT-50	2.380688	1.7364157	1.8440611	2.034157	2.052821	2.4425428	1.1325245	1.2060434	1.1913787	1.1956064	1.1602687		
Phase-1 RCT-82	0.25695	0.2166238	0.458766	0.5576299	0.4595501	0.1824703	0.4798026	0.5462084	0.2600658	0.437287	0.47349		
Phase-1 RCT-89	0.3552208	0.4085257	0.5090707	0.6109154	0.5832527	0.3703634	0.7264777	0.6337453	0.7567938	0.7044188	0.8626255		
14-3-3 zeta	2.4876626	2.5851805	2.5322504	2.5469873	2.3486543	1.8583727	1.726598	1.2884848	2.0383265	1.2585353	1.6559125		
Dynamin-1 (D100)	0.3681365	0.3156565	0.6926623	0.6317583	0.5881891	0.4311712	0.5552758	1.7845032	0.5021089	0.6688958	0.7320942		
Insulin-like growth factor binding protein 1	4.09912	2.6876137	1.5428771	1.2521568	1.75171	9.570809	3.1451118	4.4176188	5.5840554	14.986245	4.352973		
L-Quinolone-gamma-lactone oxidase	0.2836435	0.3368473	0.109222	0.1410183	0.1024532	0.1540088	0.4284025	0.7763927	0.3512681	0.3215035	0.4937252		
Onitine decarboxylase	2.6702077	1.7596312	3.36143	3.1633654	3.3053238	2.5982585	1.7417487	0.9407112	2.3900425	3.79146	2.4031808		
PAR Interacting protein	1.8047488	1.5374928	1.3036878	1.372397	1.3069781	1.5500888	1.3725723	0.9911812	2.3314483	3.399191	2.498675		
Phase-1 RCT-128	0.2631531	0.1966537	0.5546628	0.4105176	0.4124066	0.1287209	0.2610953	0.25388717	0.4495242	0.5020827	0.8744867		
Phase-1 RCT-180	1.3630766	1.4211651	1.3993635	1.3392003	1.3563623	1.3504307	1.0581591	1.2047618	1.6687604	2.1196127	1.5529243		
Phase-1 RCT-182	0.3218927	0.3130553	0.4731438	0.5896933	0.4702373	0.1998336	0.4732614	0.9002813	0.4417828	0.5780073	0.6721711		
Phase-1 RCT-207	2.323234	2.052179	4.962027	5.8372107	4.2311134	2.3718715	1.6958535	1.575976	1.4611253	1.3495066	1.3248067		
Phase-1 RCT-213	1.8683668	1.7128414	1.4119722	1.3509684	1.3226017	1.9685909	1.912038	1.2079958	1.6935531	2.1802568	1.4635438		
Phase-1 RCT-256	0.4909451	0.6471754	0.4204458	0.4681548	0.3985326	1.783197	0.4952782	0.5465581	0.6016132	0.4108733	0.567182		
Phase-1 RCT-258	1.2575247	1.1695766	1.2801701	1.2076132	1.170575	1.4995515	1.5391624	1.030154	1.8378503	1.6984399	1.7165172		
Phase-1 RCT-264	0.2154877	0.188911	0.5761324	0.5465801	0.479608	0.2527308	0.4882877	0.9711127	0.573242	0.4133744	0.5339918		
Phase-1 RCT-271	0.8366982	0.8164485	0.4656967	0.4626961	0.4087006	0.2605189	0.3692878	0.981989	0.5658845	0.2281156	0.7652426		
Phase-1 RCT-288	0.3186414	0.2718188	0.5253037	0.5078078	0.4492259	0.3661428	0.7278074	0.8314838	0.7927978	0.5058951	0.7464088		
Phase-1 RCT-39	0.4150598	0.533973	0.4111636	0.4577699	0.4010142	0.1925091	0.4667193	0.5035883	0.4866598	0.392105	0.5153089		
Phase-1 RCT-39	2.2124736	1.749692	1.8224922	1.6615362	1.8016862	1.654823	1.328566	0.9892198	1.4951581	1.7632052	1.5089498		
Phase-1 RCT-68	2.1566505	1.4050556	1.485298	1.418502	1.3690349	1.7326883	1.5685108	1.2695843	1.3621974	2.1917771	1.349382		
Phase-1 RCT-33	0.3803582	0.4745723	0.6986424	0.5838725	0.56718	0.372041	0.5170196	0.5720211	0.5256481	0.3678081	0.692852		
Phase-1 RCT-36	0.5533384	0.6301913	0.7939576	0.7302828	0.7118964	0.6817357	0.7909334	0.7314478	0.6294958	0.6062564	0.7238615		
17-beta hydroxysteroid dehydrogenase, type 2	1.0615338	1.0238155	0.368348	0.368322	0.3759525	0.4504577	0.3096684	0.7507751	0.2374674	0.0870459	0.3042386		
Senescence marker protein-30	0.2534248	0.1735427	0.2483918	0.2251867	0.2134901	0.0557977	0.8578165	0.4901452	0.3265905	0.6101742	0.4756615		
Ribosomal protein S17	1.8915443	3.1056142	1.2711122	1.3190625	1.2238346	3.3450155	2.8760078	1.8085343	5.932119	4.060182	4.122136		
Phase-1 RCT-83	0.4341747	0.5129233	0.9146224	0.6623862	0.7000412	0.4333007	0.74153	0.4578597	0.4806289	1.0974122	0.4933587		
Phase-1 RCT-49	2.9415908	1.8672976	1.2631255	1.3293079	1.5471046	1.5203938	1.1185481	1.028222	2.5147662	3.1215978	1.4098959		
Phase-1 RCT-48	0.9350863	1.022386	0.5052744	0.5270482	0.4756997	0.8411301	1.1232914	0.6541692	1.5474547	0.7114306	1.2848297		
Phase-1 RCT-40	0.8049822	0.6798528	0.7428839	0.7489824	0.6309288	0.4652426	0.8891092	0.5999652	0.8103631	0.7407968	0.9397186		
Phase-1 RCT-296	0.1987942	0.3182876	0.2677555	0.2315752	0.2159824	0.2116805	0.3070078	0.2609357	0.3584994	0.2410906	0.4301213		
Phase-1 RCT-295	2.6815648	1.945779	1.7784998	1.7093782	1.5794578	1.7463839	1.7317485	1.4193774	2.1300788	1.1552148	1.9849582		
Phase-1 RCT-291	0.4586504	0.4680468	0.8175751	0.6251997	0.6205142	0.3430022	0.6811923	0.7058753	0.8062863	0.902947	0.872913		
Phase-1 RCT-270	0.5490685	0.6973921	0.3661616	0.4698817	0.3580332	0.7376154	0.9222827	0.4590384	0.841916	0.5652776	1.0688179		
Phase-1 RCT-241	1.8536006	1.1664719	1.9973739	1.6643655	1.9321384	4.4410043	2.4815652	1.755722	1.2062521	5.1566087	1.2833571		

Table 35

Phase-1 RCT-181	1.2354523	1.5771224	1.4348435	1.6863945	1.4465715	1.4370487	1.0701078	0.9604746	1.0463903	1.1161467	1.0215257
Phase-1 RCT-188	0.5598978	0.4924721	0.7783914	0.7727737	0.7230405	0.9204568	0.9100975	2.2762378	0.775551	0.5634856	0.9121578
Phase-1 RCT-179	4.3181944	3.5845747	1.8343986	1.7831013	1.6343557	2.1898865	2.131917	1.2312531	3.515963	3.3964953	2.8372436
Phase-1 RCT-152	3.668693	2.2573147	1.7310591	1.6673004	1.6254013	1.952817	1.2181956	1.2125252	3.4195673	3.464468	3.2163763
Phase-1 RCT-123	0.8191747	0.7673098	0.8466443	0.8801989	0.8450431	0.8232431	0.9170819	1.0439477	1.0546218	0.9203017	0.8318388
Paraoxonase 1	0.3058035	0.2891786	0.3929069	0.3948471	0.3929238	0.4373049	0.3522886	0.4543921	0.6170477	0.6435435	0.5868695
Organic anion transporter 3	0.6113555	0.6187644	0.6130362	0.6605445	0.8027735	0.4978685	0.4878685	0.7824898	0.7201845	0.2668372	0.5907037
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	0.2415767	0.4231103	0.484724	0.4197559	0.3222497	0.1877245	0.8197165	0.3250847	0.2943599	0.2678011	0.3148257
Integrin beta1	5.1019516	3.8175101	1.573844	1.4625477	1.8222693	2.8472126	1.6182631	1.9419913	3.420329	1.4432499	3.0728092
Insulin-like growth factor binding protein 3	0.8303501	0.6314594	0.4924185	0.5146573	0.4497303	0.8376819	0.8384919	1.1824737	1.5775281	1.0321959	1.2421197
ID-1	1.6156043	1.7759207	1.6622672	1.7494773	1.674152	1.9203006	1.7592985	2.068847	1.794348	1.95102	1.224109
Hepatic lipase	0.2398743	0.3034584	0.4506221	0.3347099	0.3740014	0.2286487	0.283026	0.2469568	0.3094597	0.3313223	0.3375785
Heme oxygenase	3.1921563	2.1816916	1.9651408	1.2491082	1.7900773	7.5731807	4.1159506	3.8484248	1.3794575	1.7603893	0.9527385
Equilibrative nitrobenzylthioinosine- sensitive nucleoside transporter	0.3744075	0.4208692	0.6519004	0.5300047	0.4478541	0.3818915	0.702141	0.9337137	0.3926923	0.378743	0.4083328
Epidermal growth factor	0.7741652	0.7305021	0.8157427	0.8084115	0.720866	0.9693316	1.7297313	0.9592072	1.5870221	0.9880326	1.2859584
c-myc	2.5362456	1.9832413	1.4373343	1.4835546	1.8225677	1.8932587	1.1164914	0.8659097	2.3030653	3.6104088	1.6798997
Carbonic anhydrase III	0.0736234	0.0395167	0.1195262	0.2708453	0.0702452	0.0117874	0.2131445	0.0484569	0.042078	0.0155059	0.0623944
Beta-actin	1.9376596	3.9194362	3.757428	3.3873239	3.3316884	4.541738	3.6038154	1.9381654	1.8195095	0.8495761	1.8375195
Bax (alpha)	2.1037614	2.1600115	2.8567157	2.5599995	3.241329	1.9627922	1.3835134	1.0760796	1.3634481	1.2035679	1.2662263
Alpha 1 - inhibitor III	0.2710247	0.2268782	0.309813	0.2809846	0.1764347	0.2384945	0.217445	0.1569447	0.4046228	0.4373252	0.3898592
60S ribosomal protein L6	3.3545399	3.5781336	1.7731404	1.7175888	1.5630764	2.5147152	2.060655	1.5466884	3.6433098	2.9608994	3.0682132
Phase-1 RCT-117	0.3997174	0.3334382	0.7746869	0.8133801	0.7481362	0.9192369	1.283714	1.0358288	1.3469433	0.8523306	1.003985
Phase-1 RCT-102	0.2470088	0.4453755	0.2258873	0.2477862	0.1698040	0.5152615	0.4322599	0.4386782	0.5187646	0.228282	0.6092138
3-hydroxyisobutyrate dehydrogenase	0.6972511	0.6349042	0.7004641	0.6557396	0.651206	0.4262131	0.8733965	0.9578417	1.0383763	0.863119	1.0147189
ATPase inhibitor (rat mitochondrial IF-1 protein)	0.2955565	0.1477015	0.4832205	0.45668	0.3451347	0.3854721	1.1122072	0.7471101	0.8283711	0.6378441	0.7316048
Alpha-2-macroglobulin	0.3910856	0.2752153	0.4048126	0.3359529	0.244181	23.249428	41.42365	62.307213	16.063503	1.3831676	5.767094
Phase-1 RCT-137	0.434687	0.3112053	0.5007291	0.4360122	0.4262447	0.6077146	1.0373673	0.8031477	1.0044543	0.8107134	0.9401739
Phase-1 RCT-252	0.6941654	0.8083181	0.5263416	0.594892	0.4145114	0.3861008	0.8064206	1.2346245	0.3861909	0.2774641	0.724722
Phase-1 RCT-65	1.872127	1.6192725	1.8160166	1.5001667	2.1914096	1.343297	1.1689955	1.0036343	1.3006888	1.4564623	1.4998978
Liver fatty acid binding protein	0.3382239	0.2494568	0.3516527	0.3246081	0.3006346	0.1161629	0.7933183	0.2678778	0.3178494	0.2527193	0.6347455
Carbamyl phosphate synthetase I	0.7803598	0.8374881	0.512184	0.5761876	0.4066467	0.3663031	0.609023	0.367345	0.1693196	0.1875227	0.1875227
C-Jun	2.5174065	2.6855447	2.5841537	2.7859666	4.314467	2.6335511	0.7459129	0.6617427	1.1737827	0.8560048	0.8595898
Transferrin	0.2011055	0.1376162	0.4308766	0.4424237	0.36734	0.1902513	0.3039445	0.7334244	0.4855523	0.3420488	0.440925
Aflatoxin B1 aldehyde reductase	0.7426355	0.844063	0.9466383	0.6902703	0.4967341	0.3211476	0.554858	0.6119368	1.0316564	0.4717417	0.96732
Phase-1 RCT-15	1.6929237	1.5214922	1.6198026	1.558452	1.7254446	1.0915115	1.0193505	1.3333447	0.9537966	1.3662827	0.9507271
Insulin-like growth factor I	0.499285	0.5132347	0.5977248	0.5840488	0.514194	1.1351922	1.0237365	1.3732512	1.519353	0.8663654	1.1916889
Sodium/bile acid cotransporter	0.2600418	0.1927289	0.2757223	0.3455292	0.3803255	0.0984281	0.1745389	0.2761393	0.2228238	0.3779753	0.2763225
Organic cation transporter 3	3.160059	3.1794984	1.6465837	1.6556724	1.4823074	2.0866288	1.8236203	1.4894385	3.607207	2.8135083	3.2252228
Gadd153	3.9715643	3.3575413	3.5105417	3.7394226	3.718889	2.250709	2.37944	1.2583137	4.319167	6.1349654	3.1438622
Phase-1 RCT-109	2.4580665	2.476058	1.5446198	1.5333225	1.4501681	2.0907156	1.6830128	1.4481655	2.7390962	1.4874567	1.7395225
Phase-1 RCT-48	0.4308733	0.2647123	0.6943689	0.7229518	0.7016216	0.3965782	0.7791432	0.6823598	0.2878019	0.6176607	0.3978799
Ubiquitin conjugating enzyme (RAD 6 homologue)	2.5353518	2.467456	1.4764893	1.400529	1.3854331	2.283681	2.0152547	1.7165396	3.8817916	2.1415613	3.087568
Glucose-regulated protein 78	3.1048079	3.077932	1.876816	1.4548755	1.8926141	2.6247435	3.4789073	0.8616164	3.1809487	1.4576194	2.3401244
Ribosomal protein L13A	2.8906465	3.3036292	1.8384863	1.690393	1.6658877	3.598756	2.4913232	1.8317091	2.706431	1.6055487	2.2288036
Monocyte chemoattractant protein receptor (CCR2)	2.926744	2.8152988	1.2009089	1.3419428	1.518025	1.6373835	1.5220052	1.3633609	3.163511	1.8815453	2.9708285
Fas antigen	2.2001362	3.0729573	1.6169696	1.5318164	1.4695637	2.580348	2.3735287	1.3982044	1.9717069	1.2846663	1.5546567
Calpactin I heavy chain	12.612631	5.756459	1.7480668	1.533049	1.928503	2.9384553	2.3833342	1.8821089	1.534087	2.0392743	1.3811786
Uncoupling protein 2	2.747504	3.2889676	1.4044496	1.4367484	1.6971748	6.955903	4.3691616	2.6572087	2.0109238	1.036088	1.149882

Phase-1 RCT-168	0.4832274	0.4702842	0.5985751	0.5447391	0.49088	0.4847648	0.7845792	0.7486283	0.6611595	0.545911	0.8431302
Phase-1 RCT-154	2.6354088	2.5956717	3.5815625	3.7613555	3.2897866	2.6428416	2.0896	1.5849568	2.04064	1.6209718	1.6209718
Superoxide dismutase Mn	4.810452	3.3345268	3.1344278	3.0455792	3.6470962	28.04024	7.832339	2.394923	2.8805702	1.2925397	2.1549284
Phase-1 RCT-214	0.3511649	0.3579352	0.5273634	0.4846814	0.4198829	0.3492123	0.6440124	0.5590386	0.5834078	0.3942233	0.6990368
Phase-1 RCT-225	4.8842797	7.39835	1.8376107	1.8109711	2.8840644	2.2128696	1.0646118	0.6646872	1.0973544	0.9136313	0.8297837
Phase-1 RCT-181	0.5210405	0.5422825	0.6564993	0.7138847	0.6847149	0.6005467	0.8006349	0.9006349	0.830143	0.8672756	0.7656751
Nucleoside diphosphate kinase beta isoform	3.1658315	2.5818887	1.6010534	1.6418049	1.6392882	1.6041514	1.6804731	1.4666766	2.4673586	2.24651	2.4346757
Extracellular-signal-regulated kinase 1	0.2955306	0.2157069	0.6341048	0.6378844	0.5643207	0.1133004	0.2310077	0.0686844	0.1219657	0.4694386	0.0861044
Ribosomal protein L6	3.3378031	2.7102234	1.5689124	1.56034	1.4911461	2.3021507	1.8350469	1.5237614	2.5557644	2.4429827	2.9320183
Aldehyde dehydrogenase, mitochondrial	0.3863192	0.4810944	0.7647163	0.7006017	0.6312822	0.3849141	0.7131299	0.6280847	0.4124292	0.8013456	0.8013456
p53	1.5792546	1.3919713	1.5384244	1.6138364	1.4117432	1.5543827	1.0921013	2.1978454	2.3337293	2.5007539	2.5007539
Phase-1 RCT-239	0.4623943	0.6159889	0.6604329	0.7438845	0.7570936	0.5096839	0.7600747	0.6855991	0.6998276	0.8080244	0.7033839
Macrophage inflammatory protein-2 alpha	4.3032336	4.131834	5.5702376	3.9283495	5.477772	5.18203	1.0923767	0.876895	2.1031275	1.8884826	1.3847436
IgE binding protein	4.228803	2.5187447	1.4950165	1.5623817	2.0334957	3.794436	2.5900264	1.6660497	1.551265	2.0679865	1.1396853
Phase-1 RCT-205	2.1216888	1.7425519	1.3302377	1.1805426	1.1610519	1.008086	1.9188421	1.161093	1.3876886	1.4977337	1.3650494
Melanoma-associated antigen ME491	3.3384204	3.0576618	1.5293678	1.5107981	1.3709565	3.208101	2.347323	1.5201687	1.6761239	2.6907697	1.1217319
Phase-1 RCT-242	2.502969	1.9304981	2.65577	2.743458	3.0169485	2.733232	1.0188131	1.7555054	1.0455018	1.8127679	1.0365269
Enolase alpha	3.401915	2.7248144	1.442403	1.6410878	1.3387332	1.8455384	1.8848325	2.174774	2.1598978	1.8890874	2.79597
Thymosin beta-10	2.712763	3.1536043	1.6251288	1.7323841	1.5989083	3.9025621	2.8668551	1.6888744	1.2492478	1.054894	0.9320112
Colicin	1.8249001	1.6070789	1.5602291	1.6471423	1.6590159	1.8075478	1.4177225	1.5704997	0.9478048	2.0307536	0.9081824
Carbonyl reductase	1.822178	1.7614437	1.3840628	1.500332	1.3418725	1.7387627	2.162352	1.1286834	1.1547201	1.1931348	0.8689779
MAP kinase kinase	1.9318287	1.3715352	1.0448365	0.9797045	1.009818	1.600833	1.4160094	1.1958083	2.4855893	1.4102533	1.5995666
Phase-1 RCT-162	2.5117955	2.3354561	1.1536458	1.1076671	1.0317303	1.5802153	1.7163582	1.4109371	2.5982504	1.9128536	2.2607555
Phase-1 RCT-72	2.8882408	2.14235	1.498445	1.5753512	1.3181504	1.5816523	1.1156082	1.5036164	0.9813537	1.0477184	0.9731574
Ribosomal protein S8	3.6880822	2.810254	1.4871483	1.504773	1.441238	2.3676322	2.2928112	1.5483511	3.8184233	3.2701423	3.4564333
Proliferating cell nuclear antigen gene	1.6779164	1.7010555	1.235962	1.3882531	1.3744995	1.1826684	0.9877722	1.9501332	1.1627108	1.295589	1.295589
Phase-1 RCT-192	3.1902063	2.960657	1.4751972	1.4764692	1.5566491	1.0021596	1.355259	1.1878891	2.843858	2.6253877	2.207398
IkB-a	3.2208064	3.0759237	1.2719118	1.1730907	1.1193483	1.798759	1.3409535	1.3540832	1.452268	1.3961512	2.0755541
Endogenous retroviral sequence, 5' and 3' LTR	2.5319226	4.017355	1.1651069	1.4002427	1.8155566	2.8396678	1.2753332	2.88483	1.0842069	0.6936452	1.3325577
Phase-1 RCT-37	2.3224986	2.411325	1.2078261	1.2474034	1.2350786	1.3788408	1.4027919	1.3393837	2.0552845	1.607621	2.120729
Matrix metalloproteinase-1	2.4765117	2.7124596	1.6149306	1.4061809	1.9094181	2.8414335	2.7873578	2.0484884	2.2166493	1.1281914	1.4505272
Cytin G	5.3807287	3.834693	14.40476	13.8836155	11.29682	4.8585463	2.08717	1.4589163	2.5818844	2.4444077	2.3687803
DNA polymerase beta	1.9210663	1.7829913	1.2404811	1.2879065	1.1820363	1.656545	1.5768837	1.1382797	2.340702	1.574351	2.2816472
Phase-1 RCT-127	2.7382896	1.4555961	1.7976109	1.315999	1.270272	1.5563499	1.181267	1.2497655	2.114602	2.9832692	1.1246674
Multidrug resistant protein-2	5.6216693	4.368329	6.537999	5.2299156	6.291526	6.101459	1.3631802	1.1497924	2.29267	2.0402007	2.0502715
Ribosomal protein S9	2.353816	2.4559047	1.3804723	1.2748027	1.2205178	2.6673539	2.3430028	1.6080464	3.9793404	3.1277268	3.3447332
Phase-1 RCT-12	2.8943422	2.7650568	1.3748502	1.5280563	1.4395126	1.0252221	1.1662626	1.0776675	1.478154	0.9862046	1.5113669
Beta-tubulin, class I	4.5409716	4.0335603	1.5651003	1.6743562	1.3539561	1.160093	1.4484888	1.0494959	1.6342668	1.0425073	1.6485117
Argininosuccinate lyase	1.5525362	1.7829258	1.3006063	1.2219703	1.2713649	1.1828184	1.2965101	1.5434442	1.7829134	1.8219311	1.8219311
Elongation factor-1 alpha	3.4833143	3.0697136	1.2317096	1.1826649	1.0001109	1.4001266	1.5824631	1.562912	3.0029984	2.1054409	3.040404
Phase-1 RCT-55	2.497205	3.481534	1.0522933	1.0909011	0.9684229	2.6684349	1.4018486	1.106244	1.5388008	0.9695969	1.5653485
Macrophage inflammatory protein-1 alpha	3.682614	2.820711	1.0940967	1.1576011	1.2802014	2.5488615	2.3011187	1.1437613	3.3961067	1.7024724	0.6086369
c-H-ras	1.5157272	1.2628487	1.2059296	1.908223	1.8544047	1.533287	1.7200844	1.4194655	2.0273306	0.5580133	2.4432003
Multidrug resistant protein-1	4.672183	3.5607157	6.194462	4.565507	6.61969	6.61969	1.7653552	1.794919	2.4148564	1.7656102	2.4298098
T-cell cyclophilin	1.8808334	1.6533729	1.1197162	1.197918	0.9988607	1.7894582	1.7653552	1.794919	2.4148564	1.7656102	2.4298098
Phase-1 RCT-185	0.3651064	0.3859086	0.6561667	0.7295263	0.5573542	0.3613886	0.3755098	0.5059522	0.3668154	0.4734672	0.4554441
25-DX	0.7308176	0.7980366	0.8372745	0.7882463	0.7188332	0.5671201	0.6672101	0.7046103	0.5021314	0.7932999	0.7932999
Rel-1	1.7280709	1.0760912	0.7327272	1.3010856	1.40766	1.061592	0.5916336	0.8284427	0.7658656	2.0282104	1.0856603
Apolipoprotein CIII	0.3845007	0.3544948	0.6036383	0.6460893	0.5554969	0.4126337	0.5027271	0.7918134	0.4094147	0.4548712	0.4560881

NADPH quinone oxidoreductase-1 (DT-diaphorase)	0.6578077 2.452139	0.3878311 4.8594093	1.5965279 1.1102097	0.8436654 0.9760528	1.3620995 1.184582	0.6428888 5.7231703	0.3372252 3.6357646	0.6055678 2.5874655	0.4935458 3.2084875	1.157221 0.9033669	0.738646 2.4648018
Pyruvate kinase, muscle											
(1) Gene expression data for 24 hour timepoint are presented as mean ratio of treatment/control for all 24 hour predictive genes (Table 5).											
(2) Compound and dose abbreviations as in Table 1.											
(3) Individual animal number											
(4) Liver necrosis classification for compound-dose group at 72 hr: yes, necrosis observed; no, no necrosis observed											
(5) Predictive gene (as in Table 5 and as included in Table 32)											

Table 36. Expression Data for 72 Hour Timepoint													
(1)													
Compound-Dose	5-FU 13	5-FU 13	5-FU 13	5-FU 50	5-FU 50	5-FU 50	5-FU 50	5-FU 50	5-FU 50	5-FU 50	5-FU 50	5-FU 50	5-FU 50
Animal Number	1927	1928	1928	1928	1937	1938	1938	1939	154	155	156	447	448
Liver Toxicity Necrosis Classification	no	no	no	no	no	no	no	yes	yes	yes	yes	no	no
Gene Name	0.969951	1.0700635	1.0865526	1.129316	1.2050588	1.1870325	1.1870325	1.1870325	0.8815244	0.8815244	0.8815244	0.9125878	0.9125878
Osteocalcin													
Stathmin	1.0413886	1.0483744	1.1142105	1.1054851	1.1851743	1.1240172	1.1240172	2.5768566	0.9633835	0.9633835	0.9633835	1.250439	1.250439
Calpastin heavy chain	0.9645633	0.892865	1.0548522	0.9876137	0.79915	0.8879408	0.8879408	0.9676314	1.023595	1.023595	1.023595	1.1163723	1.1163723
Phase-1 RCT-179	0.9493563	0.9855681	0.9642185	0.8180571	0.9315319	0.9270162	0.9270162	2.6958725	1.1845527	1.1845527	1.1845527	0.8107591	0.8107591
Phase-1 RCT-107	1.0761541	1.1578256	1.235701	1.1342469	0.9466655	1.0133674	1.0133674	0.6435929	0.7628921	0.7628921	0.7628921	1.1841815	1.1841815
Heme oxygenase	0.9025708	1.135419	0.8615593	0.9341835	0.9455808	1.1712598	1.1712598	0.510144	0.892726	0.892726	0.892726	1.137639	1.137639
Collagen type II	0.7163266	0.6514535	1.03215	1.2716824	1.162188	1.102798	1.102798	0.3082276	0.9134976	0.9134976	0.9134976	1.1569868	1.1569868
Phase-1 RCT-81	0.9785277	1.0268575	0.8821607	0.9235126	1.0425531	0.9879032	0.9879032	1.1211524	0.925682	0.925682	0.925682	1.157246	1.157246
Glycine methyltransferase	1.0341022	1.4220868	1.3221622	0.8464599	0.8657392	0.6646456	0.6646456	0.0819506	0.5086108	0.5086108	0.5086108	0.8564665	0.8564665
Cystatin C	0.8633391	0.7946892	0.7379763	0.7160083	0.8839765	0.7305825	0.7305825	2.4716213	1.0397563	1.0397563	1.0397563	0.962675	0.962675
Melanoma-associated antigen ME491	1.145443	0.9589542	1.06653	0.9292073	1.1735859	0.9954483	0.9954483	4.9345407	1.0747501	1.0747501	1.0747501	1.4041648	1.4041648
Phase-1 RCT-148	0.954965	0.9888958	1.1668619	1.1559684	1.1536561	1.1824548	1.1824548	3.5023203	0.9794813	0.9794813	0.9794813	0.7553826	0.7553826
Gamma-actin, cytoplasmic	0.7517159	1.0923398	0.7758412	1.1703815	1.0074474	0.8592308	0.8592308	5.2881746	0.8693094	0.8693094	0.8693094	1.2397884	1.2397884
Adenine nucleotide translocator 1	0.8236181	0.6897306	0.7170191	0.5581313	0.623617	0.594527	0.594527	1.6180526	1.47194974	1.47194974	1.47194974	0.9155044	0.9155044
Thymosin beta-10	0.997647	0.8344549	0.853404	0.7035356	0.7076368	0.691427	0.691427	3.9618843	0.8672857	0.8672857	0.8672857	1.0872332	1.0872332
Insulin-like growth factor I, exon 6	0.6797717	0.7067867	0.8319299	0.7817259	0.9870643	0.9336631	0.9336631	0.2434111	1.2470008	1.2470008	1.2470008	0.8142175	0.8142175
Phase-1 RCT-78	1.003851	1.1061211	1.0524888	1.0166086	1.2369981	0.9863712	0.9863712	0.6201778	1.0170801	1.0170801	1.0170801	0.9552047	0.9552047
Alpha-2-microglobulin	0.7529354	0.8843004	0.8709653	0.6830331	0.8158258	0.6713768	0.6713768	0.1020938	1.1356126	1.1356126	1.1356126	0.5337375	0.5337375
High affinity IgE receptor gamma chain (FcER1gamma)	0.8997756	0.62943	0.8488627	0.8539848	0.7522562	0.7487342	0.7487342	5.2777414	0.9322805	0.9322805	0.9322805	0.983659	0.983659
60S ribosomal protein L6	0.8167281	0.828237	0.648639	0.7580135	0.7720456	0.8397325	0.8397325	2.7640116	1.2841421	1.2841421	1.2841421	0.8431895	0.8431895
IgE binding protein	0.8768226	0.7910359	0.9715458	0.9832329	0.7600466	0.8918518	0.8918518	1.9591208	0.8509467	0.8509467	0.8509467	1.281797	1.281797
Phase-1 RCT-149	0.9832444	1.215046	1.0454048	1.0081153	1.0813608	0.8787513	0.8787513	1.0148742	0.9192869	0.9192869	0.9192869	1.0363133	1.0363133
Cytochrome P450 2C11	0.9164714	0.8312135	1.0904676	0.96248012	0.9878835	0.0701988	0.0701988	0.9914832	0.5426267	0.5426267	0.5426267	0.9910386	0.9910386
Uncoupling protein 2	1.0084312	0.8977585	0.9049379	0.9235997	0.750951	0.7013487	0.7013487	1.6111355	0.8327372	0.8327372	0.8327372	0.9577513	0.9577513
Cofilin	0.8681752	0.9315227	0.8598644	0.8072376	0.9125328	0.7562591	0.7562591	3.6496747	1.1576402	1.1576402	1.1576402	0.5966381	0.5966381
Alpha-tubulin	1.5154852	0.8585563	0.8663417	0.9582878	1.0310849	0.9280919	0.9280919	4.747834	1.1908678	1.1908678	1.1908678	1.187194	1.187194
Sleary-CoA desaturase, liver	0.7958847	1.5796993	0.7592334	0.3704651	0.3228053	0.4370344	0.4370344	0.0385864	0.9496064	0.9496064	0.9496064	0.4948863	0.4948863
Glutathione S-transferase theta-1	1.0998224	1.197295	0.982352	0.7582377	0.8401789	0.8411005	0.8411005	0.6331312	1.2043787	1.2043787	1.2043787	0.9510303	0.9510303
alpha-1,2-acyltransferase	0.7747647	0.8443999	0.9826416	0.9551688	0.8185694	0.9322889	0.9322889	0.607288	1.0526489	1.0526489	1.0526489	0.6724361	0.6724361
Phase-1 RCT-138	0.8736028	0.8846882	0.8201236	0.8566141	0.8652619	0.7459089	0.7459089	5.375366	0.9415078	0.9415078	0.9415078	0.8440448	0.8440448
Phase-1 RCT-295	0.9197255	1.1378814	1.0468268	1.0005407	0.9669781	1.073701	1.073701	2.440102	1.0815469	1.0815469	1.0815469	1.1372378	1.1372378
Phase-1 RCT-164	1.075194	1.0326631	1.0399846	1.0580999	1.0442871	1.0720721	1.0720721	0.3899932	1.0466295	1.0466295	1.0466295	0.8687149	0.8687149
Alpha-2-microglobulin, sequence 2	0.9283375	0.944221	0.8468411	0.9722416	0.8175801	1.011621	1.011621	2.3468167	0.8776702	0.8776702	0.8776702	0.9067587	0.9067587
Bliverdin reductase	1.0735621	1.1160256	1.032149	0.9632576	0.9041788	1.0130522	1.0130522	2.3091648	0.779675	0.779675	0.779675	0.9543671	0.9543671
Phase-1 RCT-121	1.0867867	0.9979767	1.1078133	1.0369955	0.9455674	0.9311594	0.9311594	4.4027247	0.8713264	0.8713264	0.8713264	1.3244894	1.3244894
Dynamin-1 (D100)	1.0033746	0.9972388	1.0340531	1.0128713	1.0680677	0.8801333	0.8801333	0.8436685	0.9949011	0.9949011	0.9949011	0.9873377	0.9873377
Phase-1 RCT-192	0.8398137	0.8046559	0.838825	0.8465866	0.8506914	0.8648363	0.8648363	2.1317122	1.277597	1.277597	1.277597	1.1319622	1.1319622
Fatty acid synthase	1.1757807	1.0066183	0.647183	0.7598658	0.6236664	0.7148122	0.7148122	0.2668054	0.7436091	0.7436091	0.7436091	0.820248	0.820248
Phase-1 RCT-211	1.071757	1.2180904	1.2642843	1.1857843	1.0922923	1.0381172	1.0381172	2.2164423	1.0214303	1.0214303	1.0214303	0.8741385	0.8741385
Ribosomal protein S9	0.9845772	0.8954235	0.8423289	0.7311903	0.8462595	0.8115394	0.8115394	0.9514397	0.9514397	0.9514397	0.9514397	0.7072545	0.7072545
NADP-dependent isocitrate dehydrogenase, cytosolic	0.87452	0.8838992	0.8225636	0.8660845	0.9534469	0.9433341	0.9433341	0.3819105	1.2875751	1.2875751	1.2875751	0.7439401	0.7439401
Phase-1 RCT-57	1.2352293	1.0792147	1.054714	1.0451549	1.0912895	0.932143	0.932143	1.181341	1.0851213	1.0851213	1.0851213	0.7734788	0.7734788
Phase-1 RCT-38	1.0064197	1.00379	0.9392124	1.0398009	1.1371857	1.1348154	1.1348154	0.9181783	0.9003484	0.9003484	0.9003484	1.249701	1.249701
Apolipoprotein AII	0.8000239	1.056588	0.8252667	1.095802	0.6923998	0.7764528	0.7764528	0.0742243	0.7052455	0.7052455	0.7052455	0.881849	0.881849
Phase-1 RCT-68	1.0338419	1.0902893	1.1296043	1.1040165	1.1730129	1.1150606	1.1150606	2.6457605	1.0487605	1.0487605	1.0487605	0.9616104	0.9616104

Multidrug resistant protein-2	1.2035265	0.872673	1.0378677	1.1044017	1.0718092	1.2825006	3.0549223	0.9825953	1.1341027	1.5056955	1.1442175	1.0736461	1.121198
Phase-1 RCT-39	1.1388977	1.0984565	1.141138	1.0590113	1.1543058	1.5932043	2.5275684	1.0271404	1.0339537	1.8241241	1.1903906	1.3744453	1.1361084
NIPK	0.8683677	1.1073897	1.1775956	1.1853739	1.3786619	1.1588168	0.9394025	1.0780785	1.1850392	1.0815257	1.137849	0.957609	0.957609
F1-A1Phase beta subunit	1.070447	0.897666	0.7789232	0.8940795	0.8918327	0.8932382	0.9210895	1.3208119	1.0628144	0.6900291	0.885393	0.5929795	0.7621051
Stomach factor-1 alpha	1.0019583	0.850616	0.7781481	0.8828736	0.8802917	0.8676453	1.4780015	1.011157	1.0898534	0.5979561	0.781841	0.5395579	0.9502831
Phase-1 RCT-24	1.3823482	1.0563383	1.0271013	1.2867222	1.1807474	1.1236929	4.516335	1.0907329	1.1682153	1.08381	1.0654734	0.9007047	0.9007047
Beta-tubulin, class I	1.2002798	1.1058043	0.9102078	1.231496	1.1170341	0.9742035	3.4324992	0.9557724	1.1232898	0.80837	1.0639108	0.8552526	0.8552526
14-3-3 zeta	1.0739676	1.0081358	0.9577284	1.0638145	1.0654648	1.0558933	3.1627438	1.3390443	1.298517	1.2500001	1.1097312	0.5318328	0.9342166
Alpha-prothymosin	0.8115841	0.8865615	0.8561143	0.7228828	0.9715313	0.6856253	2.793975	1.0955473	1.0402584	0.5142798	0.7254174	0.5318328	0.9342166
Phase-1 RCT-58	1.021573	0.928602	0.5977446	1.2995312	0.9395064	1.2866535	0.3408152	0.852432	1.0231446	0.95126	0.9785181	0.7161284	1.7438189
Phase-1 RCT-290	0.6342936	1.1279619	0.8451277	0.8937851	0.9548385	0.8444008	0.8274252	0.897883	0.700493	0.867389	0.7637888	0.6829273	1.0126884
Transitional endoplasmic reticulum ATPase	1.1092666	0.9528287	0.8217455	0.8537489	0.892807	0.8266731	1.2542001	1.151899	1.0844834	1.1483935	1.157354	1.150842	0.8053178
Beta-actin	0.6016344	0.880592	0.4757692	0.6301505	0.5687643	0.4876196	4.842202	0.5492648	1.0294207	0.7983956	0.7948111	0.5783996	1.073051
Thioredoxin-1 (Trx1)	0.7578854	0.7573998	0.7604266	0.6942516	0.7556952	0.7427477	1.5995107	1.1632018	0.8763781	0.5787691	0.8391015	0.630973	1.2275441
Phase-1 RCT-174	1.0368207	0.9793743	1.005953	1.0208279	0.9380149	0.8928571	1.2303116	0.9950138	0.967585	0.7580874	0.8038466	0.8482606	0.8092277
Beta-actin, sequence 2	0.9120035	1.075999	0.8447301	0.9673183	0.8791355	0.8839514	4.3372073	1.0929923	1.0866972	0.697978	0.7247665	0.714939	1.2761545
Phase-1 RCT-109	0.9689114	0.8357195	0.8819622	0.9217688	0.9109769	0.9494114	2.2023225	0.8838193	1.0966271	0.8342056	0.8363367	0.9605117	1.0944417
Phase-1 RCT-154	0.8882586	1.0813825	0.8955578	0.991882	0.9421839	1.0034672	5.1616063	1.828655	1.2494447	1.2052535	0.9005438	1.1758225	1.0363064
Hypoxanthine-guanine phosphoribosyltransferase	0.9622907	0.9921408	0.7495764	0.7036116	0.8558803	0.8259585	1.795463	1.0289508	0.970857	0.7845859	0.7378845	0.7687188	0.9893281
Phase-1 RCT-213	1.0289448	1.012547	0.9163631	0.997773	1.0004324	0.8398092	1.4611111	1.0894368	1.101493	1.1562724	1.0522703	1.23028	0.9288387
Phase-1 RCT-260	1.0592992	1.17589	1.1138974	1.177583	1.0766671	1.9512194	0.6897307	0.9091258	0.9539264	2.0722747	1.2284636	1.4855573	1.0473846
Phase-1 RCT-12	1.2208481	1.1157202	1.1148968	1.208064	1.1607348	1.0571896	1.467976	0.8693203	1.0272548	1.0543516	0.8187002	0.9648743	0.9497278
Phase-1 RCT-283	0.902205	0.725248	0.8025484	0.7797258	0.6877688	0.6892982	3.8202794	0.4534271	0.9803152	0.9957148	1.0942658	0.9148405	1.3929162
Ribosomal protein S6	0.7313199	0.7608143	0.7209135	0.7627183	0.7604317	0.7806884	2.8829014	1.5105716	1.1728992	0.5201059	0.8801584	0.5458887	1.288764
Pyruvate kinase, muscle	0.9627273	1.0238625	0.9212371	0.8906448	0.6203263	0.7854532	3.3741438	1.0323526	1.0273856	1.3680781	1.0077512	1.2806172	1.1181059
Nucleoside diphosphate kinase beta isoform	1.0358981	1.0604078	1.1426258	1.3883522	1.4402821	0.8230945	1.0612808	1.0325192	1.6387985	1.207202	1.3222789	0.9240763	1.018106
p55CDC	1.0753835	1.0034877	0.9444678	0.8924415	1.1059723	0.92344	1.523145	1.0160891	1.0394649	0.9112378	0.9658345	0.8954074	0.8132399
Phase-1 RCT-158	1	0.84788	0.8928293	0.883473	0.852246	0.9050952	1.5971133	0.6950438	0.8571143	0.6829917	0.8188752	0.6252306	1.3499918
Ribosomal protein L13A	0.9970371	1.0217106	0.8866961	0.980904	1.023642	0.9953602	2.0247867	1.0731311	1.0555085	1.2589285	1.1672269	1.4235071	1.0165482
Phase-1 RCT-258	0.8293313	0.7038529	0.7230224	0.6800474	0.7772068	0.7673804	0.2660137	1.22298	0.9970888	0.5238768	0.8385687	0.5944141	0.788738
Insulin-like growth factor I	1.2766204	0.8279791	1.0958333	1.1710782	1.057408	1.0173821	0.3436748	1.4397556	0.7336742	0.5147288	0.9032412	0.4489328	0.9419069
Cytochrome P450 3A1	0.7747525	0.8080512	0.7282718	0.8238423	0.8378458	0.8450586	2.861291	1.2285621	1.090688	0.674831	0.8326754	0.7612244	0.9671924
(Ribosomal protein L6)	0.8651298	0.7339278	0.8093812	0.9530845	0.93719352	0.9321305	2.3708587	1.279594	1.0502512	0.7784874	1.1630278	1.2574313	0.981805
Organic cation transporter 3	0.9167102	0.8971285	1.054384	0.9315786	0.9122772	0.9271386	3.2720208	1.0434009	1.0320688	1.390484	1.0323693	1.0808524	0.9458109
Calpain 2	0.5818176	0.855484	1.0618109	0.562142	0.5952672	0.5575636	0.1750601	1.1656874	0.8150439	1.1480837	0.9434534	0.9515201	0.7971229
Phase-1 RCT-102	0.9058754	0.9178214	0.8868893	0.9612475	0.9035993	0.9073674	0.4286702	1.060696	0.8971971	1.0199871	1.0683801	0.7600734	0.9563016
Equibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.8798	1.0533893	1.1532979	0.8942071	1.3262522	0.822188	0.5139121	1.2109516	0.9574394	0.7488204	0.7322165	0.762748	1.021454
Phase-1 RCT-227	0.8193285	0.7249482	0.8270077	0.8645389	0.7941526	0.7990018	0.1475141	1.174153	0.7940673	0.7298397	0.9891885	0.5222511	0.9502388
N-hydroxy-2-acetylaminofluorene sulfoxidase (ST1C1)	0.8819882	0.7363666	0.7552248	0.9229482	0.7112028	0.7955199	3.3119197	0.8328223	1.0188015	1.1695855	1.119341	0.9591886	1.4789538
Cathepsin S	0.9517704	1.011242	0.8711543	0.8812347	0.8272758	0.7487964	0.908379	0.9352753	0.8850537	0.9246866	1.0221066	0.8316063	0.9541129
Apolipoprotein CIII	0.9409711	1.2727741	1.1126173	1.5505565	0.9431745	1.2375308	0.83507	0.9882439	1.136342	1.4082192	1.13151	1.1591414	0.6818254
Cytochrome P450 2A3	0.6554183	0.855616	0.9141911	0.8583054	0.8750418	0.2044928	1.0995017	0.9126788	0.6649759	0.7205547	0.5232388	0.7314729	0.7314729
Cytochrome P450 2C23	0.6748665	1.0760888	0.8368316	0.752275	0.8591885	0.7302318	1.033435	1.0676221	0.6129826	0.5364373	0.5670871	0.4154754	0.6183115
Apolipoprotein C1	0.419078	1.179395	0.8100621	0.600515	0.470184	0.6716519	0.0469193	0.7825452	0.6581889	0.8279419	0.6484171	0.7125044	1.1138349
Betaine homocysteine methyltransferase (BHMT)	0.7164763	0.6322424	0.4969536	0.7062079	0.7205794	0.7315334	0.167038	1.4374983	1.509929	0.7416484	1.3832433	0.5291144	0.7538263
Paraoxonase 1	1.118056	0.8383391	0.9812176	0.9445025	0.960273	0.9953586	4.8798175	1.9436535	1.3676472	1.436187	1.1078635	1.410432	1.068741
Phase-1 RCT-207	0.9338804	0.9600784	0.8313867	0.8084224	0.9005088	0.856561	3.6256413	0.9621555	1.0201613	0.700828	0.9764546	0.737672	1.031089
Cathepsin B	1.02001	0.8740591	1.03842	0.9987744	1.0168918	2.0806998	0.9634991	1.0041808	1.3824978	1.1391203	1.187885	0.8863427	0.8863427

Alpha-1 microglobulin/bikunin precursor (Ambp)	0.8722734	0.9848654	0.79009	0.7826492	0.993853	0.8752059	0.2573969	1.3825171	1.040016	0.7834928	1.0410104	0.7050246	0.8547773
Cyclin D1	0.8593711	0.5427309	0.8305812	0.9992584	0.8993177	0.8506033	3.0825303	1.2443913	1.0637841	1.1397063	1.3300958	0.983514	0.7904937
Presenilin-1	0.6678033	0.6949133	0.7032819	0.7136693	0.8378885	0.4963172	0.1590457	1.140016	1.003872	0.5663167	1.1957431	0.5775192	0.6095333
Protein tyrosine phosphatase, receptor type, D	0.7612171	1.2185898	0.8442223	1.000478	1.1400886	0.9831977	0.2163785	1.283737	0.9790217	0.7088335	0.8759474	0.6400611	1.0258703
Multidrug resistant protein-1	1.16106	0.8565732	1.2746483	1.3502694	1.2849736	1.5758476	4.341694	1.5202778	1.2420723	0.9042078	0.9189955	1.0006263	1.0828333
Cathepsin L, sequence 2	1.1103283	0.8557289	0.9555453	1.1334109	1.0747747	1.5177153	3.2009592	0.8830947	1.075219	0.9630337	0.923663	0.7258109	1.0112801
JNK1 stress activated protein kinase	0.9671518	1.0813358	1.0258984	0.9366986	1.1199747	1.9125434	0.6564403	0.9408804	1.0185857	1.4866103	1.141679	1.1607058	1.2682866
Phase-1 RCT-43	1.1149504	0.9930238	0.9940934	0.9930289	1.0845349	0.9372512	1.5595812	0.8747907	0.9825339	0.9575816	0.9732361	0.9235078	0.8687258
Tissue plasminogen activator	0.9461408	0.9378151	1.0214618	1.203015	1.0096819	1.0228758	2.1652612	0.967519	0.9546615	0.7174415	0.8003103	0.9446138	0.9229753
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.0530157	0.9881597	0.9040673	0.8820972	0.9763135	0.9764624	1.6117871	1.3771687	1.0200104	0.8730195	1.0113631	0.9513335	0.900085
Phase-1 RCT-173	1.2212738	0.9523045	1.1818298	1.0548021	0.9468988	0.8994228	1.8045489	0.8803344	1.055568	1.4053156	1.0787874	1.2786305	0.9803518
Omitline decarboxylase	1.1954589	1.0377861	1.1071548	1.2378452	1.1849877	1.2795186	2.7529294	1.0392871	1.1374121	0.7630888	0.5413718	1.0588022	0.8761777
Zinc finger protein	1.0401613	0.9787151	1.1120123	1.0592479	1.0887815	0.9989316	2.640505	0.9683365	1.0279423	1.0118088	1.082599	1.0153428	0.9829386
CDK108	0.9289708	1.1418519	1.3328434	1.1718767	0.6955004	0.8719931	0.8136677	0.8935317	0.8771762	1.2763253	0.9414818	1.0852044	0.9023485
Phase-1 RCT-117	0.7949771	0.975597	0.9532428	0.908209	0.8411522	1.1965882	0.6033082	0.8603073	0.9173284	0.7610333	0.991488	1.0059144	1.2872521
(Phase-1 RCT 98)	0.9450135	0.9875153	0.9558741	0.8696487	1.0220724	0.8827683	0.6566961	0.9999724	1.0200299	1.238478	1.0820506	1.027432	0.818683
Aquaporin-3 (AQP3)	0.9138117	0.9036757	1.0496352	0.9408348	1.0217019	0.9605978	0.7852445	0.9485655	0.9437774	1.4833888	1.0456846	1.0865897	0.9164439
Cholesterol esterase	0.8608466	0.657684	0.878566	0.8668829	0.7698643	0.7699159	0.2323421	1.6882516	1.1603326	0.5649027	0.7092658	0.5896284	0.8474324
Ribosomal protein S17	0.8424332	0.821301	0.8002396	0.7898509	0.8217851	0.7843193	2.8501992	1.3345183	1.1354333	0.5489339	0.8880912	0.5084007	0.9039568
Poly(ADP-ribose) polymerase	1.0492022	0.9449236	0.8881267	1.0632423	0.9187188	0.9485507	1.8375245	0.9696912	1.0564777	1.2958622	1.0225128	1.2818485	1.0500812
Annexin V	0.9980867	0.782895	1.0344614	0.9270984	1.0183661	1.1806387	3.7135267	1.1681834	1.0432401	1	0.9228605	1.1789558	0.9516839
Phase-1 RCT-33	1.0513141	1.0208912	0.8650785	0.9665988	1.1613983	1.1854288	0.2595179	1.368556	1.183645	0.8002285	0.8658405	0.9782263	1.2397981
Phase-1 RCT-61	1.017836	0.9157198	0.8684428	1.0402333	0.9279007	0.9786879	1.4505388	1.0322316	1.0532357	1.2904439	1.0639188	1.2913243	1.0595719
Retinol dehydrogenase type III	1.00604	1.1517749	0.9983751	1.0194402	1.0130548	1.1555505	0.1848336	1.2205725	0.9278845	0.5662104	0.6876118	0.5020449	0.9959416
ATPase inhibitor (rat mitochondrial IF1 protein)	0.5725072	0.729885	0.8633565	0.8411699	0.7143095	0.6913182	0.1008984	1.3428714	0.8857921	0.3448964	0.7311584	0.3106828	1.0149113
Thymidylate synthase	1.0896528	0.9540239	1.3407125	1.0481198	1.4454896	1.348726	1.033676	1.1451863	0.9950822	1.7977358	1.3181409	1.4102528	1.0841591
Interleukin-18	0.9687101	0.9214739	1.3595658	1.1744161	1.4215939	1.4431158	4.5706115	1.0428894	0.9739743	1.9533352	1.2988793	1.5210843	1.1517737
Lectin:cholesterol acyltransferase	1.0029972	1.0301572	0.8950343	1.0581727	1.2628851	1.0963795	0.3279749	1.0388725	1.0353965	0.6228899	0.9354507	0.7145761	1.1522353
Contrastin-like protease inhibitor (CPI-21)	0.7812051	0.7477906	1.0113498	0.8961886	1.1519202	1.1516407	0.3400995	1.0108711	0.9019488	0.4391919	0.5283366	0.5484051	0.7735558
Proliferating cell nuclear antigen gene	1.0201807	0.8158989	1.1410704	1.0238171	0.8775057	0.9469696	1.0752137	0.7641678	0.9438332	1.4332315	1.1575084	1.1337144	1.177591
Phase-1 RCT-230	1.0386474	1.2087572	1.11468	1.1578287	0.9698152	2.8295217	3.2487206	0.8196799	0.9355146	1.9163396	1.1768075	1.4005544	1.2182211
Cytochrome P450 2D18	1.1358376	1.1605132	1.0560999	1.0338767	1.1123887	0.9068768	0.319027	1.0204084	0.997489	0.5771297	0.5775753	0.7153438	0.948432
Phase-1 RCT-48	0.9506919	1.6124053	1.0106314	0.7709962	0.992533	0.7230981	0.5559517	0.982266	0.7924252	0.6943718	0.7623019	0.8855337	1.0376965
Phase-1 RCT-282	0.906597	1.0188742	0.8786699	0.9129641	0.9965693	0.8973333	0.9722806	0.8941038	1.1609571	1.0046117	1.0895233	0.8930761	0.6030882
Arginosuccinate synthetase 1	0.8495073	1.7028462	0.8816573	1.0471342	0.9115225	0.8125272	0.3783045	0.7568478	0.8988513	0.6747679	0.6030883	0.7680519	0.6030882
C-reactive protein	0.8468158	1.2573138	0.8438098	1.0362847	1.0968858	1.0183805	0.1868424	1.1718352	0.9674087	0.7386256	1.1804248	0.8218448	1.2533889
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

(1)	
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[illegible]

Table 36

Multidrug resistant protein-2	1.07752	1.1496143	1.1874845	1.1534336	1.0897099	6.224701	7.882569	1.0947547	1.0197006	0.9801525	0.9821009	1.2237284	0.9472362
Phase-1 RCT-39	1.1341487	1.128192	1.0224286	1.057367	0.8790058	1.2784921	1.53414	1.0464879	1.3200861	1.1040015	1.1585228	1.8524477	1.1725256
NIPK	0.9723628	0.9261184	0.9981779	0.9193227	1.0082444	1.0858938	1.0181683	0.9376257	0.9464999	0.8746529	1.1670011	1.0838578	1.0127863
Fl-A1-Phase beta subunit	0.7239271	0.8628145	0.8795612	0.8641006	1.0957649	0.6991774	0.938277	0.8354707	0.8527878	0.7850332	0.8713193	0.7925922	0.7925922
Elongation factor-1 alpha	0.7167143	0.8739466	0.8943721	0.9282248	0.9615978	0.8750632	1.1521223	0.9002569	0.8711752	0.8116559	0.6963314	0.8901634	0.8901634
Phase-1 RCT-24	0.8607509	0.8075434	1.067797	1.032105	1.018203	1.1332814	1.4239482	1.1332122	1.747484	0.582368	1.1486178	1.0248694	0.6563191
Beta-tubulin, class I	0.7363347	0.7157833	1.0279392	0.9390429	1.0123988	0.6426236	7.5364776	1.0488628	1.8479863	1.8090361	1.1589731	1.0304754	0.9483816
14-3-3 zeta	1.1251712	0.9639939	1.0534065	1.094678	1.29418	1.880126	2.4726498	1.155319	1.0730238	0.960773	0.9016347	0.9141322	0.7630782
Alpha-prothymosin	0.8937961	0.8630645	0.8645507	0.8342282	0.8183244	1.1689241	1.8442423	0.8679537	1.207658	0.984184	1.088534	0.808538	0.934819
Phase-1 RCT-58	0.9279539	0.867276	1.2292862	0.7624725	1.142739	1.1699715	1.1986583	1.7628741	2.4260914	1.4184598	1.3878303	1.0686206	1.2387108
Phase-1 RCT-290	0.9232877	0.8329106	1.2360516	1.3623552	1.3094383	0.9488323	1.1978697	1.1523108	0.9411885	1.0021284	0.9342828	0.9776657	0.7782234
Transitional endoplasmic reticulum ATPase	0.6349538	0.7142041	1.1888083	0.8811165	0.9876559	1.4489847	1.9207093	0.8485102	1.4414287	1.5952727	0.923439	0.788799	0.8780814
Beta-actin	0.9895525	1.0733508	0.788615	0.885769	0.8407176	1.1920848	1.467968	0.7378477	0.9789224	0.957205	0.8394296	0.810562	0.6703984
Thioredoxin-1 (Trx1)	0.7657149	0.8592543	0.8866135	1.0016433	1.0119494	0.7712758	0.8763287	0.9286366	0.9889553	1.0739684	0.9487322	0.7626795	0.7495541
Phase-1 RCT-174	0.7607747	0.8335984	1.0828733	0.89847	1.0296172	1.6286996	2.001358	0.8772548	1.2594824	1.2245363	0.9565428	0.7405182	0.6703818
Beta-actin, sequence 2	0.8537247	0.8175308	0.9605108	0.883778	0.9494119	1.4613513	1.634832	1.151125	1.2275605	1.2834669	1.0544317	1.0959524	1.0810595
Phase-1 RCT-109	1.108054	0.9948319	0.9788994	0.9664544	0.9848525	1.6750766	2.358975	1.022631	1.123081	1.0528035	1.0407375	1.1455297	0.9648869
Hypoxanthine-guanine phosphoribosyltransferase	0.9981924	0.7957512	0.8740243	1.014736	0.9731789	1.9589052	1.8787788	1.0457658	0.974292	1.1722118	0.8648775	0.6428782	0.6377174
Phase-1 RCT-213	1.0030487	0.9003825	0.9811747	1.0646389	1.1104083	1.0330868	1.3180627	1.072504	1.140303	1.1149786	1.0525291	1.1365695	1.037818
Phase-1 RCT-280	1.010093	1.1170255	0.9985426	1.044127	0.9915931	0.8918958	0.7451444	1.0430866	1.1580281	1.1560673	1.2946502	2.069257	1.3877446
Phase-1 RCT-12	0.878989	0.8230778	1.040774	1.0051653	1.0406597	1.518563	1.5306286	1.0474133	1.2560636	1.2557675	1.1649806	1.0926504	0.8731258
Phase-1 RCT-293	1.2597652	1.1168697	0.9634956	0.8353489	0.860715	1.5456666	2.118387	1.0210024	0.926058	0.9356627	0.9445224	0.912496	0.8589827
Ribosomal protein S8	0.9248457	1.0085368	0.8009844	0.8433974	0.8371554	1.2650287	1.5453748	0.8142046	1.2142032	0.9584548	0.9407015	0.857261	0.8589827
Pyruvate kinase, muscle	1.0366606	1.016298	1.001874	1.0477198	1.0360358	1.5231359	2.500938	1.001797	1.0679061	1.2638142	0.9011749	1.1648188	1.058326
Nucleoside diphosphate kinase beta isoform	0.8192705	0.8706	1.040557	1.0243948	1.0360487	1.2355199	1.148878	1.0071797	1.0771052	1.2346809	0.9509649	0.8371346	0.7529434
p53CDC	1.077894	1.0128747	1.1438805	1.0202894	0.9278312	5.9877205	4.510824	1.0557381	0.7146177	0.8749532	1.1316959	1.1602808	1.0138327
Phase-1 RCT-156	0.817032	0.8678875	0.9477462	0.9685282	1.0615103	1.4185276	1.4924241	1.0020304	0.9822069	1.0062172	1.0507131	0.8276653	0.9334294
Ribosomal protein L13A	1.0324097	1.0203551	0.9332788	0.9380892	0.9876405	1.4593916	1.6768428	0.9671445	1.054638	1.1947678	1.0526072	0.9633628	1.0811931
Phase-1 RCT-258	1.0635455	0.9337896	1.0533118	1.1042937	1.156895	1.3947822	1.4659443	1.0627569	0.8592545	0.8795207	1.0125678	0.9504645	0.9508449
Insulin-like growth factor I	0.9076874	0.9042084	0.7033805	0.6339206	0.8773336	0.2888818	0.310505	0.4911268	0.8592545	0.8795207	1.0125678	0.9504645	0.9508449
Cytochrome P450 3A1	0.6546494	0.8715524	0.6370456	0.8559843	1.1856766	0.2287413	0.1942198	0.4495637	1.0798403	1.0262203	0.9057198	0.9057805	0.9881634
(Ribosomal protein L6)	0.9227381	0.9613035	0.8017798	0.8621198	0.869778	1.2038296	1.4534042	0.8429774	1.1094832	1.1262203	0.9057198	0.9057805	0.9881634
Organic cation transporter 3	1.1017131	0.8995573	0.9590088	0.9490131	1.2909509	1.5503481	0.963211	1.0725541	1.0853885	0.8876924	0.9249399	0.8378446	0.8378446
Calpain 2	0.9790413	0.954222	0.9938647	0.9774466	0.9930515	1.381663	1.7618228	0.8788865	1.1063011	1.0847701	1.0715489	1.2646389	1.0660602
Phase-1 RCT-102	0.841759	0.7601402	1.0093353	0.6505152	1.0963286	1.0339808	0.2965995	0.6135968	1.0651057	0.7739497	0.8495645	0.7996237	0.4361207
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.7170103	0.8633407	0.809563	0.919827	0.832206	0.7611795	0.6371979	0.733324	1.1811428	0.9247397	1.0435213	1.1939234	0.9007819
Phase-1 RCT-227	0.832433	0.9085563	0.7113149	0.8469383	1.0876085	0.2302121	0.2120681	0.5982322	0.9537432	0.8302525	1.0325209	1.0857631	0.8765516
N-Hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	0.8270136	0.9833823	0.6856463	0.8485147	0.8589159	0.3046154	0.4018374	0.6020333	1.1408024	0.8783152	1.0334685	0.7908436	0.7683087
Cathepsin S	1.1445665	1.0871803	1.1206547	1.2086037	0.9291799	1.22348	1.7622389	0.9779825	0.7176972	0.7137683	0.81483	0.8779549	0.8153431
Apolipoprotein CIII	0.9099588	0.9745081	0.6008609	0.8645765	1.0026829	0.3362517	0.3710449	0.729895	0.9255832	0.9327635	0.9102806	0.9396611	0.8980252
Cytochrome P450 2A3	0.9009761	0.8446443	0.8733484	0.8943771	0.8824588	0.6240841	0.4891037	1.1159716	0.7373989	0.7745938	0.8311551	1.1817834	0.8633851
Cytochrome P450 2C23	0.8186837	0.8084015	1.0112249	1.0878804	0.3707306	0.4201918	1.0233607	0.6866213	0.7666213	0.9337705	0.6877017	1.0180584	0.7356579
Apolipoprotein C1	0.7237665	0.7232543	0.651229	0.7761082	0.8226616	0.2121816	0.2467121	0.4205687	0.6511681	0.6461373	0.8008907	0.6854454	0.7356579
Betaine homocysteine methyltransferase (BHMT)	1.0328261	1.3002588	1.1148337	0.759697	1.2334772	0.164473	0.1858653	1.3524756	1.1330392	1.2980897	0.8869918	0.7574872	1.0818377
Paraoxonase 1	0.7265446	0.8428021	0.7563697	0.8475233	0.8718169	0.2522978	0.2769961	0.7576053	0.8293496	0.7777128	1.0247835	0.7670471	0.8772206
Phase-1 RCT-207	1.1176119	0.968812	1.1584294	1.0129689	1.1058992	1.5422435	2.1614718	1.2949879	1.2802753	1.2479931	1.1382987	1.3571469	1.1681944
Cathepsin B	0.9697614	1.0331763	0.8750228	0.9008336	1.0638956	0.9409047	1.5576241	1.1710337	0.8429157	0.7370607	0.8340884	0.7638789	0.8206951
Phase-1 RCT-144	1.1695511	0.957203	0.8754512	0.9052626	0.9560471	1.6237742	1.9486456	0.9812635	0.9898805	1.0395595	0.9292108	1.0288191	0.9182516

Alpha-1 microglobulin/bikunin precursor (Ampb)	0.8694684	0.8957668	0.8244814	1.0281191	1.0477533	0.3669841	0.4315671	0.8082636	0.7800831	0.8236181	0.9184158	0.6700303	0.7475736
Cyclin D1	0.88927	0.9482615	0.8837642	0.9462849	1.0978832	3.935017	6.6928487	0.8606712	0.99205195	0.9920145	1.2871701	0.704463	0.6915481
Presenilin-1	0.6652092	0.6408032	0.6770415	0.8176213	1.0290071	0.24805	0.2819044	0.734044	0.491666	0.6838772	0.9354093	0.6609998	0.6652281
Protein tyrosine phosphatase, receptor type, D	0.9281665	1.0696032	0.7288044	0.696601	0.7478465	0.3627736	0.3354135	0.6945829	0.6554171	0.7499036	0.9465961	0.6193129	0.6625299
Multidrug resistant protein-1	1.0119833	1.0792178	1.153148	1.1761672	1.0586014	5.848797	8.373859	1.1132793	0.9017593	0.9550255	0.9597141	1.148508	0.8973927
Calpains L, sequence 2	0.8861113	1.088411	0.925434	1.0204825	1.0711149	1.0810905	1.9204733	0.9470462	1.1565012	0.9366908	1.0414155	1.0620497	1.2271235
JNK1 stress activated protein kinase	1.10341	1.2580817	0.8097616	0.9187343	0.8178818	4.2086624	0.6133399	0.7706849	0.8462283	0.8646806	0.9543814	0.8783579	1.0681374
Phase-1 RCT-43	0.8800764	0.8153289	1.1784082	1.0198114	1.0554614	1.0733256	1.2281545	1.3047005	1.0215228	1.0186087	1.0316347	0.8641629	0.8088063
Tissue plasminogen activator	0.8835572	1.1318626	1.0078002	0.9908918	1.0128971	1.5977608	1.8362759	1.0164875	1.02526	1.0561055	1.016692	1.2096735	0.9118817
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.057086	1.0294458	1.0688142	1.0751971	1.0558813	1.5929868	1.591105	1.6448854	1.0887611	1.0380757	0.8869945	0.7987487	0.6901038
Phase-1 RCT-173	0.999857	0.7902179	1.195326	1.3948131	1.3588079	1.1845385	1.507371	1.180338	1.2198315	1.0866017	0.9443107	1.1436399	1.0639615
Omitrine decarboxylase	0.7669446	0.7243339	1.103425	1.0479572	1.1045203	2.5105798	3.3767169	0.9452842	1.4660763	1.5359765	1.3232245	1.4517137	1.2580624
Zinc finger protein	1.0674223	0.9785439	1.1855369	1.0807849	1.1024027	2.377176	2.6799488	2.2509618	1.0465976	0.8030982	1.072402	1.401568	1.1422974
CDK108	0.9214761	0.9610168	0.9546953	1.3245543	1.312092	0.8045728	0.9018864	0.7569535	1.1431019	1.0555173	1.1088835	1.069331	0.7800115
Phase-1 RCT-117	0.992003	1.3204676	0.9257302	1.1593589	1.3537414	0.7281377	0.6595961	0.8797169	0.8397641	0.9848115	1.0041924	0.6569024	1.069035
[Phase-1 RCT 98]	1.0172758	0.8810394	1.0311644	0.9591566	1.0539962	0.9564288	0.7471356	1.016783	0.8850634	0.9900761	1.0371346	1.244872	0.9431975
Aquaporin-3 (AQP-3)	1.0619748	1.0742525	0.9685384	0.9642112	1.2719256	1.047214	0.7458628	0.9573809	1.0517709	1.0150708	1.1303658	1.584589	1.1273608
Cholesterol esterase	0.579205	0.5814209	0.7017274	1.2136436	1.0838976	0.1716152	0.3837878	0.5562876	0.8492237	0.7214252	0.9517184	0.6175317	0.4831047
Ribosomal protein S17	0.711049	0.8855068	0.7384635	0.8393767	0.7738181	1.174896	1.5419097	0.7669351	1.2943111	1.530198	0.964956	0.8296696	0.809412
Poly(ADP-ribose) polymerase	1.1880165	1.0103994	1.3619204	1.3036892	1.3005532	1.6234771	1.9413532	1.2794269	0.9585888	1.0347806	0.9171872	0.9888369	0.9205747
Annexin V	0.9884856	1.0033226	0.8581558	0.9727357	1.157306	1.5704571	2.1399108	1.0080514	0.9158522	0.9419338	1.0747107	1.1047	0.9239167
Phase-1 RCT-33	0.9135903	1.0256009	0.7408863	0.9481106	0.9501658	0.7290353	0.6586532	0.8617401	0.783736	1.1249604	0.9455988	0.5571223	0.8282624
Phase-1 RCT-61	1.0555913	0.8530002	1.0120102	0.9591839	1.0589085	1.1765337	1.2905543	1.2016295	1.6551856	1.2779154	1.2894487	1.3189981	1.2266397
Retinol dehydrogenase type III	0.881651	0.8572318	0.8766584	1.0432407	0.9918767	0.3364937	0.3971592	0.8144317	0.7684085	0.8844373	0.9006121	0.6697387	0.7366603
ATPase inhibitor (rat mitochondrial IF1 protein)	0.9200221	0.9989137	0.6337205	0.7492762	0.7608547	0.2641971	0.2441437	0.6336075	0.745707	0.8028933	0.8055155	0.5721975	0.5959546
Thymidylate synthase	1.1926887	1.1322815	1.0541902	0.9536973	0.9321356	2.2123704	1.8912121	0.9674373	0.979291	1.0095354	1.0308487	1.2690271	1.2930784
Interleukin-18	1.2813542	1.2034311	1.3980619	1.015742	0.8954116	1.2492509	1.3416272	1.090983	1.1152735	1.1617442	1.0709224	1.2356924	1.2356924
Leclithincholesterol acyltransferase	0.9519377	0.9405515	0.9217619	0.9764004	1.1098969	0.4259491	0.4707978	0.8450127	0.8306551	0.870392	0.9421437	0.6713304	0.8059824
Contraptin-like protease inhibitor (CPI-21)	0.582172	0.7411926	0.7655159	0.9652755	0.7571916	0.2139093	0.2233552	0.7321507	0.9233533	0.9633406	0.9481024	0.720007	0.697846
Proliferating cell nuclear antigen gene	1.0803862	1.1330564	0.9878046	0.9421038	0.8697872	3.7038424	5.3185306	0.8965269	0.6881105	0.8794885	0.9269369	0.9263132	0.9446375
Phase-1 RCT-230	1.0667944	1.0640471	1.0760959	1.1071147	0.9634178	1.1595778	1.6881274	1.0406	1.6997038	1.409522	1.3183954	2.3302011	1.5084877
Cytochrome P450 2D18	0.7058376	0.8476963	0.972111	1.164403	1.063696	0.3548263	0.4245442	0.8402456	1.180543	0.9105666	1.1410987	0.9553257	1.2370874
Phase-1 RCT-48	0.920765	0.8640373	1.0831143	0.9469433	1.0532118	0.8145611	0.6610331	0.8973675	0.9518727	0.8384043	1.0807776	0.7940692	0.8099068
Phase-1 RCT-292	1.0724427	0.9853155	1.0007388	0.9459087	1.0481877	0.7911491	0.7306105	0.9871337	0.9107593	0.857282	1.0711156	1.1163489	1.015889
Argininosuccinate synthetase 1	0.8373551	0.8882028	0.8074041	1.052846	0.9390838	0.5797324	0.6516259	1.0175127	0.6932884	1.0496676	0.797556	1.0624845	1.5216209
C-reactive protein	1.357493	1.3635825	0.7342775	0.6966915	0.7622907	0.2857386	0.3237806	0.6838257	0.6811762	0.7092243	0.9274418	0.550492	0.6492354
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint

Table 36. Expression Data for 72 Hour Timepoint																
Compound-Dose Animal Number Liver Toxicity Necrosis Classification	APAP 1000		AZA 50		AZA 200		AZA 200		BAP 30		BAP 30		BEN 250		BEN 250	
	2139	1827	1828	no	1829	no	1837	1838	2347	2348	2349	no	2027	2028	2028	
yes	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	
Gene Name	1.7442634	1.0554289	1.2178595	1.1061507	0.9829723	1.0677088	1.2427696	0.7633666	0.9208676	0.9368166	1.0278345	0.9759598	0.9541799			
Osteocalcin	1.0159887	0.9306594	1.0516781	0.9389561	0.9511749	0.8807868	1.0246987	1.0648342	0.9941376	0.8678392	1.0049565	0.9890381	0.9954662			
Statfmin	1.2721559	1.316806	1.1392441	1.3593363	1.2592739	1.063146	1.0914866	0.8174328	1.0142207	1.1011418	0.8451812	0.8605818	0.8875928			
Calpain1 heavy chain	0.8476872	0.8834053	0.9725488	1.1693795	0.8216287	0.650199	0.8047909	0.9040349	1.1635467	0.8163979	1.1476456	1.1285348	1.1974391			
Phase-1 RCT-179	1.3291122	1.209793	0.7831907	0.7314231	0.7404692	1.0209668	0.975454	0.6142405	0.810172	0.7340949	0.1676675	0.7332417	0.8700099			
Phase-1 RCT-107	1.3889989	0.8902127	1.4730558	0.9848958	0.8249318	0.8494343	0.9367114	0.8515387	1.1506398	0.9976817	0.8731903	0.8692938	0.8814703			
Heme oxygenase	0.8660091	1.2375706	1.0801641	0.7014595	0.4536103	0.7017102	0.8398609	0.615554	0.714283	0.8448488	0.7732662	0.9583902	0.9502413			
Collagen type II	0.8124965	1.4526607	1.0298101	0.972189	0.909838	1.060174	1.0405328	1.0302714	1.0628395	1.081509	1.0577362	1.0471642				
Phase-1 RCT-81	1.5085201	1.3030987	1.020008	0.939905	0.9086768	1.1247524	0.7871756	0.7321743	0.6491656	0.7744513	1.3632704	0.6894956	0.5862431			
Glycine methyltransferase	0.8823004	0.7914807	1.017546	0.8303401	0.7222297	0.8289626	0.5786949	1.0605918	1.4850395	1.222467	0.9719199	0.9488784	1.0671415			
Cystatin C	1.1354219	0.9531214	1.0520972	0.8394347	1.0992347	1.5119162	0.8816481	0.4695938	0.7457984	1.0950565	0.9483482	0.7363373	0.8786908			
Melanoma-associated antigen ME-491	1.774253	0.9065082	0.9689874	0.9016306	1.0819753	0.8883901	1.0597003	0.8185076	0.820965	0.7638132	0.824885	0.9454404	0.9142026			
Phase-1 RCT-146	1.040697	1.0298547	1.2704695	0.8135639	0.7754642	0.7522932	0.8322755	1.199802	1.0018974	0.9828488	0.8347971	1.1944734	1.0293244			
Gamma-actin, cytoplasmic	0.7857239	1.1415877	0.8038001	0.9104328	1.15262	0.6767545	0.5804666	0.719802	1.119317	1.1637152	1.2710003	0.8949179	1.0009009	0.9454685		
Adenine nucleotide translocator 1	0.9482792	0.819198	0.8992539	1.2631198	0.9780922	0.6691499	0.6478322	1.119317	1.1637152	1.2710003	0.8949179	1.0009009	0.9454685			
Thymosin beta-10	0.690232	0.7707499	1.3099772	0.4849887	0.5457941	1.1790028	1.1790028	1.1790028	1.1790028	1.1790028	1.1790028	1.1790028	1.1790028			
Insulin-like growth factor 1, exon 6	0.8340079	1.2859026	1.059758	0.780887	0.912423	1.1206205	1.1363213	0.9468452	0.8472861	0.8683577	1.1865907	0.7078062	1.0364778			
Phase-1 RCT-78	0.3843026	0.9130017	0.3729512	0.0618712	0.1258987	0.6260716	0.4395205	0.7410244	1.4263014	0.7040035	2.2245996	0.8669123	1.103959			
Alpha-2-microglobulin																
High affinity IgE receptor gamma chain (FcεR1gamma)	1.0743184	0.8991705	1.7539	1.024774	0.9321016	1.2125677	1.0862519	0.836903	1.17592	0.9317178	1.0306318	1.0805396	1.0324378			
60S ribosomal protein L6	0.986824	0.7753903	1.0650977	1.821971	1.5385334	0.6568363	0.6301947	1.0829839	1.2432252	1.1689441	0.951027	0.9719621	0.9743241			
IgE binding protein	1.4182585	0.9969845	1.4466337	1.2180369	1.2516683	1.0256358	1.1755921	0.926634	1.2088739	1.1500667	0.9750683	1.0197732	1.0589234			
Phase-1 RCT-149	1.190779	1.5265349	1.3824137	1.5153292	1.3272084	1.3338541	1.3954105	0.8934012	0.8740944	0.8776845	0.9005011	1.0129972	0.9334681			
Cytochrome P450 2C11	0.1045564	0.4500415	0.5969157	0.0952107	0.1804035	0.8313705	0.6447482	0.7171892	0.9171776	0.7835012	1.3089204	0.7224247	1.1185842			
Uncoupling protein 2	0.6527032	0.6978151	1.203821	1.2096842	0.9850048	0.8054089	0.8880107	0.9362439	1.1254663	1.1691501	0.8237024	0.9016534	0.9460508			
Collin	0.8447343	1.0200111	1.4226388	1.1968276	1.2844959	1.2010138	1.2559023	1.0651364	1.0516005	1.1789145	1.1184256	1.135401	1.2132947			
Alpha-tubulin	0.7139607	0.8397889	1.1861697	1.5466967	1.3872929	0.6298964	0.7081554	1.1650293	1.1021737	1.145896	0.940027	0.7935429	0.8174322			
Sleazy-CoA desaturase, liver	0.0648368	1.000766	1.2432885	0.0540449	0.9078777	0.9234308	1.0686681	0.5249705	0.5249705	0.7607313	0.8806791	1.3591728	1.0579499	0.8144934		
Glutathione S-transferase theta-1	0.738526	1.1214896	0.8422167	1.1615282	0.9272302	0.8051523	0.6895958	1.637086	0.9991132	1.330281	1.1124417	1.0426691	0.9549689			
alpha-1,2-fucosyltransferase	0.9286404	0.3937459	0.7459428	0.4797273	0.490614	0.7848902	0.8371681	1.6037846	1.3037846	1.6359925	0.9878493	1.2194093	1.130337			
Phase-1 RCT-138	1.188949	1.1510736	1.3639377	1.0106406	0.181156	1.4436628	1.1851641	0.8086864	1.0814918	1.0210139	0.9874908	1.0714673	0.9858749			
Phase-1 RCT-295	1.0689395	1.1803529	1.3020525	1.8957951	1.3770395	1.2251912	1.1324469	1.2575265	1.2618934	1.3226582	1.1243664	1.1032137	1.1881669			
Phase-1 RCT-164	0.7117347	0.455668	0.7528336	0.567269	0.7260688	0.8474892	0.89715803	1.1784492	1.3834275	1.2206571	1.2224475	1.1338114	1.0400144			
Alpha-2-macroglobulin, sequence 2	1.0306371	0.8921737	1.3772447	1.2323927	1.2334658	1.0485398	1.0589442	1.0420711	1.1145922	1.1027628	0.8827623	0.8888741	0.797082			
Blivudin reductase	1.0358386	0.7792645	0.9612248	0.7360094	0.7760094	0.9290329	1.1155728	0.8255143	0.8282476	0.9030463	0.9160818	0.8821367	0.8602567			
Phase-1 RCT-121	1.3358386	0.9758607	0.8984437	0.616138	0.9290329	1.1155728	0.8255143	0.8282476	0.9030463	0.9160818	0.8821367	0.8602567	1.0090847			
Dynamin-1 (D100)	1.393038	1.1140817	1.2607106	3.4208527	2.446104	1.004794	1.0424358	1.0184351	0.7197703	1.0746738	1.0380316	1.0715344				
Phase-1 RCT-192	0.68046	1.5044891	1.503357	0.2159105	0.3805859	0.9686304	1.2078505	0.2959582	0.5391581	1.749277	0.8031355	1.0855428				
Fatty acid synthase	0.9858777	1.178419	1.0099635	1.2506936	1.0778153	0.855866	0.8458847	0.9743958	1.0029863	0.9595708	0.9242735	0.908488	0.9948749			
Phase-1 RCT-211	0.6113282	1.1241314	1.0451373	1.3967657	1.3615512	0.6378786	0.5168105	1.3400418	1.1576551	1.4237312	0.8928949	1.1987304	0.9336507			
Ribosomal protein S9																
NADP-dependent isocitrate dehydrogenase, cytosolic	0.7281815	1.1164416	1.2042	0.9136791	0.9594753	1.0586321	1.1740109	1.3765702	1.1915616	1.0954084	1.0534599	1.2545471	1.3635904			
Phase-1 RCT-57	1.0201224	0.9202775	0.7485843	0.8463665	0.8739875	0.7581104	0.8574721	0.8414845	0.9532251	0.9110832	1.0412863	0.8594852	0.8029			
Phase-1 RCT-36	0.9619991	1.1618502	1.0629506	0.8935255	0.9162824	1.1687304	0.9638876	0.7679087	0.8034469	0.9724424	0.9534135	1.0073488				
Apolipoprotein AII	0.6442748	0.5168222	0.4584646	0.3165545	0.3875718	0.4653184	0.356289	0.576774	0.6007274	0.5761822	1.489308	0.9021205	1.142229			
Phase-1 RCT-68	1.1241831	1.1218619	1.1592414	1.4162563	1.3257603	1.0689141	1.1530737	1.1840075	1.1381367	1.0322258	0.9489069	0.8986816	0.9113449			

Multidrug resistant protein-2	1.1750672	1.0418181	1.354428	1.8041686	1.2940089	1.1765388	1.116643	1.5343723	1.5238523	1.1975121	0.808524	0.8715478	0.9282476
Phase-1 RCT-39	1.2318007	0.9167102	1.9371025	1.2886477	1.0485166	0.7530326	0.7882171	0.693597	0.9221368	0.7676128	0.9056468	0.900655	0.9215154
NIPK	0.9207399	1.0612721	1.1627171	1.363865	0.7772798	1.0631816	1.0231078	0.9437878	0.8253925	0.8942478	1.1772214	1.1365082	
F1-A1Pase beta subunit	0.782541	0.7831922	1.1518492	0.9494912	1.0132805	1.1628828	0.7791532	1.542917	1.3481328	1.5664926	1.2559761	1.1916162	1.2604908
Elongation factor-1 alpha	0.8212068	0.6778993	1.2166913	1.2718514	0.9078913	1.0476997	0.9326742	1.4465233	1.4719106	1.7525318	1.2298503	1.1063725	1.1785532
Phase-1 RCT-24	0.9129595	1.1502246	1.325308	2.2778536	2.1301224	1.198025	1.4939308	0.6903296	0.7265795	0.6752951	0.9452215	0.8408493	0.7723461
Beta-tubulin, class I	0.8128831	1.3353673	1.7633778	2.7758663	2.386019	1.4851009	1.848582	1.4545242	1.319466	1.392385	1.9083484	0.9226453	0.788748
14-3-3 zeta	0.7902211	0.6612386	1.1767806	1.1592737	1.0504484	0.8689128	0.9500805	0.9496837	0.8965724	0.9346451	1.0003654	0.841206	0.8152789
Alpha-prothymosin	0.8622433	0.8872735	1.1767995	0.7901604	1.0041948	1.0139039	0.9846683	0.9794615	1.2747164	1.2571452	1.1483162	1.1435899	
Phase-1 RCT-58	1.9065506	1.5671803	1.2977611	1.5052344	1.657196	0.5607801	0.0935087	1.2615849	1.3819846	1.4600791	1.0142372	1.9507658	1.2340151
Phase-1 RCT-290	1.0416876	1.1113704	1.1485575	0.5699361	0.56785	1.0782679	1.0230234	0.9825976	0.9644496	1.1854625	1.2843778	0.9691268	0.9972787
Transitional endoplasmic reticulum ATPase	0.8262833	0.9065571	1.0192837	0.948592	1.1002098	1.0831057	0.9518993	1.0820168	1.0974638	1.0388942	0.9798068	0.9246513	0.9250945
Beta-actin	1.0552626	0.7541703	1.1531096	0.7794975	0.7793074	0.8061226	0.5811976	0.806136	0.8541617	1.2246727	1.0360985	0.9052073	0.7406613
Thioredoxin-1 (Trx1)	0.7697759	0.8737466	0.9286034	0.5324479	1.0580884	0.8255606	0.5905672	1.3043259	1.4216907	1.3825355	1.041829	1.0524304	1.1187571
Phase-1 RCT-174	0.7754786	0.8046408	0.8567431	0.8612611	0.9573403	1.0298346	1.0853034	1.0753032	0.9681437	1.2106129	1.1553631	1.002733	1.0731357
Beta-actin, sequence 2	0.8591993	1.0326557	0.9637842	0.8829244	0.874554	0.6541884	0.687307	0.9866294	1.1742547	1.0608207	1.1561888	0.9565587	1.0054355
Phase-1 RCT-109	1.0452235	0.9504346	0.9988053	1.7045947	1.0164179	0.9894563	0.1079145	1.0459028	1.0489099	0.9323275	1.0329255	1.0110548	
Phase-1 RCT-154	1.0275319	1.0133494	1.0358539	2.0430875	1.5587504	0.9866743	1.0899685	0.7850464	1.0187016	0.8785542	0.9946966	0.965987	0.9396216
Hypoxanthine-guanine phosphoribosyltransferase	0.7773862	0.7274688	1.0639428	1.0328027	1.046509	0.8281386	0.8289464	1.0203968	0.9079697	1.1034418	0.8857088	0.826262	0.7554023
Phase-1 RCT-213	0.9762197	0.9076636	0.9433808	1.3587458	1.5025436	0.944785	1.0605147	0.9384428	0.9508672	0.9556114	1.0514547	0.8845639	0.9005427
Phase-1 RCT-260	1.5011295	1.0022395	0.798633	0.8571042	0.9034081	0.8561917	0.9838793	0.6325483	0.7240926	0.6863986	0.840439	0.8914221	0.8637989
Phase-1 RCT-12	1.0808262	1.6503576	1.4280872	1.695876	1.509487	1.3035158	1.3855301	0.800623	0.8641406	0.6976966	0.8235718	0.8781989	
Phase-1 RCT-293	0.9324133	1.1118791	1.1774235	0.9224728	0.947503	1.1856179	1.159112	1.2008556	1.3799914	1.197904	0.8535771	1.0210873	0.9496139
Ribosomal protein S8	0.9479709	0.793735	1.3530215	2.1213876	2.2420235	1.0352346	0.8513129	1.3843393	1.3501385	1.369075	1.1272455	1.2637554	1.2709147
Pyruvate kinase, muscle	1.0628451	1.3307393	1.2145853	1.4377903	0.8537456	1.0729389	1.0741525	0.8257783	1.022199	0.903957	0.8465578	0.9680424	0.8737387
Nucleoside diphosphate kinase beta isoform	1.0072038	1.4325824	1.224493	3.3242485	3.802932	1.3467833	1.1831572	1.2286618	1.0921459	1.1741147	1.030918	0.9380457	
p55CDC	0.9107812	1.4588141	1.224493	0.9388015	1.0718423	0.93080254	1.0412344	1.459468	1.0146687	0.8907179	0.6879033	0.9709503	0.8069004
Phase-1 RCT-156	0.8604745	1.6647955	0.9396495	1.3056443	1.2394054	1.066813	0.9209331	0.7993514	0.762004	1.1551683	0.9825714	1.0662372	
Ribosomal protein L13A	0.9844711	0.8810417	1.170484	1.4403566	1.381612	0.9932966	0.9373242	1.2991463	1.173313	1.3156627	0.9026316	1.0168959	0.9522156
Phase-1 RCT-258	0.646507	0.5920734	1.0678031	0.3703534	1.104901	0.8072948	0.9084871	0.8954216	1.0146154	0.8780359	1.065851	1.0338187	1.0120478
Insulin-like growth factor I	0.4752716	0.6744881	0.4381978	0.1748416	0.2511769	0.8430821	0.2194159	1.0526843	1.4706197	1.5553839	1.9936191	0.7059084	1.7198875
Cytochrome P450 3A1	1.0031577	1.0102376	1.188913	2.2607793	1.5788366	1.0031677	0.9016348	1.2985632	1.2323554	1.2353194	1.0856886	1.0876548	1.1374086
(Ribosomal protein L6)	0.8036549	0.7049683	0.8244577	1.546774	1.1664284	0.743149	0.8063387	1.0102473	1.1715605	1.063453	0.9688837	1.0155559	1.0046504
Organic cation transporter 3	1.1155587	1.097653	1.097329	1.285774	1.050767	1.1031994	1.0970914	0.9946813	0.9050722	1.0079275	0.9626091	1.0058085	0.9749764
Calpain 2	0.4074023	0.5816879	0.762001	0.1889177	0.2210883	0.5289453	0.6473869	0.6190575	0.748213	0.5519697	0.9401613	1.3758427	1.0997819
Phase-1 RCT-102	0.7375059	1.2227075	0.8464594	0.6160725	0.7488957	0.8663853	0.6690838	0.8875864	1.0638837	0.9308561	1.2360958	0.9348295	1.2593366
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.6859568	1.0967706	0.9620442	0.359174	0.587422	1.3050625	0.7302176	1.1867534	1.1043403	1.3853403	1.6694032	1.0077701	1.0667775
Phase-1 RCT-227	0.6157163	0.9282182	0.8349424	0.4179207	0.5293017	0.8259302	0.5801202	0.8903882	1.2770107	0.9787152	1.2624698	0.9513383	1.4696425
N-hydroxy-2-acetylaminofluorene sulfoxtransferase (ST1C1)	0.8907197	0.7129872	1.2409745	1.021293	0.9798672	1.0087582	0.9086005	1.0875686	1.6541282	1.1210262	1.0375466	1.1290579	1.035276
Cathepsin S	0.6684836	0.8955339	0.6349268	0.3930081	0.5156372	0.7510509	0.5855129	0.8705485	0.8581371	1.0271734	1.2714211	1.0181208	1.0476782
Apolipoprotein CIII	0.5621319	1.6945022	0.7974555	0.4235895	0.3482875	1.1394193	0.868857	1.7927138	1.0939548	1.0122858	1.7618896	1.7618896	1.2092494
Cytochrome P450 2A3	0.8899001	0.6807263	0.7289705	0.3718227	0.4906106	0.7576244	0.6330579	1.087542	1.2884505	1.2465454	1.0942745	1.2156143	1.2613577
Cytochrome P450 2C23	0.7231054	1.7403597	0.8599684	0.5578179	0.8647355	1.3603568	0.9164415	0.8559626	1.1873101	0.939979	1.4877851	1.2562401	0.870997
Apolipoprotein C1	1.0233914	1.6104037	1.1487464	0.2509724	0.2264788	1.1887648	0.8340493	1.2531416	1.1022598	1.6492082	1.3290441	0.9210621	0.9933548
Betaine homocysteine methyltransferase (BHMT)	0.9011304	0.6819964	1.0109458	0.30283	0.4097163	0.9884542	0.6583744	1.5533347	1.7934949	1.6180097	1.0476077	1.2649457	1.4494368
Paraoxonase 1	1.0074805	0.7409238	0.7238606	1.291643	1.1477638	0.8706258	0.7480731	1.4774006	0.9309009	0.9347801	0.9220811	0.808013	0.7947924
Phase-1 RCT-207	0.9178546	0.8575382	1.0394129	0.8896116	0.8366765	1.1670539	0.8365765	1.4048829	1.2978196	1.2959604	1.0602698	1.0057857	1.1033943
Cathepsin B	0.8789157	0.8155246	0.9704807	1.0970395	1.0610635	1.0761682	1.0535872	0.911614	0.9085678	0.7890953	0.9088324	0.898292	0.876052
Phase-1 RCT-144													

Alpha-1 microglobulin/bikunin precursor (Ambp)	0.7101873	1.5115155	1.0155206	0.8410222	0.9051377	1.1796942	0.9280746	1.2573711	1.2025913	1.1508174	1.1323805	1.0716091	1.1059785
Cyclin D1	0.7693539	1.1415607	0.7696232	1.1801773	1.2562618	1.805082	0.7428854	0.9464304	1.0208777	0.7306938	0.855703	1.0732175	1.0045903
Presenilin-1	0.6836659	1.9513704	0.7028016	0.323649	0.3902094	1.0423739	0.9284341	0.8349696	0.8037624	1.121465	1.3487341	1.3671846	1.6418871
Protein tyrosine phosphatase, receptor type, D	0.8857953	1.0473572	1.0427297	0.6371996	0.7863677	0.9425601	0.8545989	1.4611385	1.3873389	1.4464346	1.1396631	1.367607	1.3445079
Multidrug resistant protein-1	1.0323625	1.3183824	1.2401835	1.7496647	1.1415226	1.1742604	0.9810166	1.6613973	1.5027198	1.1022202	0.8598121	0.99925	0.9147802
Cathepsin L, sequence 2	1.167783	0.7857251	1.1075039	2.5656836	1.2579716	0.9314608	0.790931	1.3517692	1.5481447	1.3716366	1.1334899	1.2533569	1.2442148
JNK1 stress activated protein kinase	1.1059991	0.5010416	0.8786856	0.4886638	0.8652743	0.7024694	0.9541101	1.4085459	1.2513661	1.6244599	1.0716865	0.9597351	
Phase-1 RCT-43	0.8379463	1.125397	0.8782998	0.9462395	0.9332675	0.7073815	0.7606553	0.8136633	0.8505719	0.7161115	1.101656	0.9765313	1.0533748
Tissue plasminogen activator	0.9832287	0.957346	0.9387048	0.967958	1.0479386	1.0272871	1.069055	0.9473354	0.8554184	0.9247072	1.0317382	1.0074824	1.0572953
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.702547	0.7409223	0.8055913	1.4088408	1.4368312	0.7028698	0.739473	1.0478432	1.133723	1.1227317	0.9539966	1.2037276	0.9841311
Phase-1 RCT-173	1.0490872	0.7328906	0.5982893	0.7436121	1.2938107	0.7632562	0.7520759	0.8552747	1.04109	1.1096245	1.0894074	0.9952132	0.8990522
Onithine decarboxylase	1.2993973	1.1187645	1.1806861	2.616302	1.6335962	0.9985913	1.1287221	0.9781167	1.0938909	1.0299417	0.9100559	0.6445763	0.6287481
Zinc finger protein	1.0420237	0.8737479	0.8866522	1.1009141	0.8656356	0.7057217	0.7678338	0.8048567	0.9401031	0.8707277	0.9413831	0.9504716	0.9127374
CDK108	0.8663761	0.7623443	0.8379975	0.8252998	0.7740063	0.6578887	0.7161561	0.8040078	0.8489295	0.533524	1.202533	0.8768492	0.9276943
Phase-1 RCT-117	1.0627179	0.8720619	0.6293701	0.7202129	0.8540639	1.0605592	0.8119791	1.0459871	0.2959243	1.1046057	0.9511775	1.0672834	0.9957365
[Phase-1 RCT-98]	0.8672158	1.2261211	1.0002141	0.8830265	0.946893	1.0899508	1.0668103	0.8925944	0.7555147	0.7928617	0.9343515	1.0553612	1.0075483
Aquaporin-3 (AQP3)	1.1014991	1.2479612	0.9537413	0.9330002	0.916423	1.1236649	1.0545712	0.7883652	0.7020149	0.7018078	0.9451975	0.9811135	0.8962692
Cholesterol esterase	0.9603876	0.7621805	1.288101	2.3542352	1.9554137	1.0609764	0.9118373	1.3764111	1.3232287	1.3071564	1.1794089	1.236496	1.2928337
Ribosomal protein S17	0.8974724	0.9959393	1.1090475	1.2187262	1.2706858	0.994122	1.0457635	1.028818	0.8772701	1.7006365	0.857888	0.8400675	0.7685719
Poly(ADP-ribose) polymerase	0.9566832	0.9545428	0.9269959	0.9488539	0.7602707	0.8558553	0.9828097	1.0325843	1.1029941	1.0554248	0.921005	1.118881	1.0234855
Annexin V	0.8638663	0.901396	1.2080189	0.6763406	0.7120999	1.2451891	1.078493	1.3428836	0.8911326	1.2404907	1.089951	1.0025655	1.0889592
Phase-1 RCT-33	1.5628604	0.9632025	0.9213528	1.017598	1.0314273	0.8044772	0.9443607	0.7554206	0.9134803	0.653396	0.8933116	1.2272693	0.9729959
Retinol dehydrogenase type III	0.6896768	1.0250745	0.7388889	0.7743334	0.9987389	1.16051	1.0204163	1.0983909	1.3712003	1.273974	1.3085166	1.3334291	1.1298102
ATPase inhibitor (rat mitochondrial F1 protein)	0.6327341	0.9077777	0.7224093	0.2319285	0.4608362	0.8664358	0.8431859	1.1035111	1.420688	1.1398587	1.349404	1.367724	1.3739301
Thymidylate synthase	1.2923088	0.9309375	0.8648577	1.0367032	1.0388154	0.921007	0.8948289	1.0587906	1.1179694	1.1311139	0.7980844	1.0370704	0.9753623
Interleukin-18	1.1971518	0.9204744	0.7773304	0.8539949	0.9944	0.8527051	0.8519848	0.9601317	1.1074777	0.9335281	0.9303798	0.9704309	0.8557349
Lectin:cholesterol acyltransferase	0.7622452	0.8543268	1.0865284	0.6879731	0.9173967	1.1360074	1.1017723	1.2743626	1.2943007	1.2492023	1.0388643	1.0205555	0.996709
Contrapsin-like protease inhibitor (CPI-21)	0.371978	1.2212936	0.9761204	0.28659	0.5100985	1.0058509	0.665351	1.4712208	1.5309656	1.729673	1.3785425	0.9812952	1.1070963
Proliferating cell nuclear antigen gene	0.8397319	0.7572033	0.9464664	0.9477596	0.9220185	0.8818064	0.9607892	0.9843259	1.559462	0.8370611	0.8508205	0.9220738	0.8373985
Phase-1 RCT-230	1.489964	0.9254345	0.9686552	0.9083772	0.8529886	0.8197033	1.003942	0.762079	1.0144832	0.7630585	0.8452615	0.9075408	0.8329161
Cytochrome P450 2D18	1.04806	1.1142033	0.9355603	0.9918465	1.1771287	1.2717947	0.9140303	1.0011578	0.9925089	1.0810784	1.0826889	0.9004377	0.8455306
Phase-1 RCT-48	0.9119663	1.0065289	1.1119583	0.6563394	0.6744658	0.8815128	0.7978674	0.8840393	0.9467446	0.96962	1.2201039	1.0325528	0.9955943
Phase-1 RCT-292	1.0922023	1.1881014	1.3417306	1.0838637	1.1884102	1.1078424	1.0187814	0.7682573	0.8790797	0.8245135	0.9810396	0.9747865	0.9435279
Argininosuccinate synthetase 1	1.1606932	1.4951184	1.0028661	0.9561262	0.7604604	1.3828661	1.1822226	1.0689672	0.5634851	0.9524351	1.1362301	1.013992	0.8305368
C-reactive protein	0.9538879	0.7238764	1.1308758	0.5118333	0.7231404	0.8444573	0.8774066	1.2633083	1.2966726	1.2973043	1.0583336	1.360634	1.2997134
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint																
(1)																
Compound/Dose	BEN 1000	BEN 1000	BEN 1000	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200	BRB 200
Animal Number	2037	2038	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039	2039
Liver Toxicity Necrosis Classification	no	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Gene Name	1.7714854	1.1497769	1.0558296	2.9468195	3.9033034	4.8531466	3.257925	4.552891	11.614666	0.7743083	0.7281053	0.998427	0.998427	0.998427	0.998427	0.998427
Osteocalcin	0.8915398	0.9986449	0.6386228	1.1402411	2.3607128	2.978854	2.0600462	1.7306098	2.7680163	0.8251013	0.8204439	0.8018185	0.8018185	0.8018185	0.8018185	0.8018185
Stathmin	1.2856395	1.0346358	1.0846181	1.0865892	1.8334358	2.4371116	1.8330046	2.5859486	3.5943158	1.0771795	1.0771795	0.984588	0.984588	0.984588	0.984588	0.984588
Calpastin heavy chain	0.9398814	1.025312	0.8118	1.6835997	1.6289447	1.9696738	1.6219666	1.6219666	3.0223236	1.0755471	1.4347752	1.0461354	1.0461354	1.0461354	1.0461354	1.0461354
Phase-1 RCT-179	0.9051704	1.043155	0.9341176	0.7727622	0.6237629	0.5761005	0.6885424	0.5958927	0.6445599	0.770768	0.8266652	0.8076884	0.8076884	0.8076884	0.8076884	0.8076884
Phase-1 RCT-107	1.0298542	0.9250947	0.9826153	1.9793903	1.7488586	1.6420211	2.666611	2.666611	2.9055958	0.8397488	0.9217719	1.1511713	1.1511713	1.1511713	1.1511713	1.1511713
Heme oxygenase	0.9207693	1.1440945	0.9412964	1.4732435	2.2941186	3.6570728	1.7478325	1.3447584	0.8179028	0.8179028	0.9027453	0.9657707	0.9657707	0.9657707	0.9657707	0.9657707
Collagen type II	0.9673993	1.0206501	1.054314	1.0737413	0.7855302	0.4257802	0.544453	0.5367469	0.3766622	0.9854073	0.7391834	1.3488361	1.3488361	1.3488361	1.3488361	1.3488361
Phase-1 RCT-81	1.1467057	0.7652832	1.2923003	0.7905642	0.7622994	0.8134938	0.7978592	0.7992837	0.8903981	0.8179028	0.9027453	0.9657707	0.9657707	0.9657707	0.9657707	0.9657707
Glycine methyltransferase	1.2014495	0.7604463	1.1038046	1.5611454	1.6873826	1.9346591	1.8024365	2.060065	1.8302889	0.8179028	0.9027453	0.9657707	0.9657707	0.9657707	0.9657707	0.9657707
Cystatin C	1.2160808	1.0265638	1.203987	0.846888	1.0906752	1.025034	1.5277342	1.9358548	1.9230475	0.8105086	0.7377471	0.9421309	0.9421309	0.9421309	0.9421309	0.9421309
Melanoma-associated antigen ME-491	0.8982046	1.1127162	0.8616027	0.8461375	1.321227	1.3248532	1.2866919	1.4085638	2.5591617	0.7054467	0.8953268	0.9532268	0.9532268	0.9532268	0.9532268	0.9532268
Phase-1 RCT-146	1.0632156	0.9851142	0.9421686	0.9215995	1.9852321	2.9552138	1.6954335	3.6883225	4.009283	1.042452	1.1056265	0.9532268	0.9532268	0.9532268	0.9532268	0.9532268
Gamma-actin, cytoplasmic	0.9068423	1.1358832	0.8251799	1.2862234	1.3214592	1.4810405	1.4063314	1.4787759	1.8118958	1.031261	1.151368	0.9955523	0.9955523	0.9955523	0.9955523	0.9955523
Adenine nucleotide translocator 1	1.427014	0.8906691	1.3001493	0.73034	0.8332628	0.7113897	0.6462033	0.6569049	0.4292359	1.195696	1.2508033	0.9919071	0.9919071	0.9919071	0.9919071	0.9919071
Thymosin beta-10	0.9477416	1.0110703	0.9557478	0.73034	0.8332628	0.7113897	0.6462033	0.6569049	0.4292359	1.195696	1.2508033	0.9919071	0.9919071	0.9919071	0.9919071	0.9919071
Insulin-like growth factor I, exon 6	1.1548288	0.8828038	1.0025762	0.650538	0.7599592	0.7757164	0.8465018	0.738811	0.7616694	0.9907897	1.0171007	1.1670578	1.1670578	1.1670578	1.1670578	1.1670578
Phase-1 RCT-78	1.031366	0.5050429	0.7053277	0.2972899	0.5034348	0.4240656	0.1497334	0.2139301	0.150329	0.7693655	0.879508	0.6975294	0.6975294	0.6975294	0.6975294	0.6975294
Alpha-2-microglobulin	1.3378341	1.0103543	1.1260664	1.3287559	1.4440914	1.9006971	1.7916274	2.033609	2.571395	0.8261297	0.8823881	1.1226264	1.1226264	1.1226264	1.1226264	1.1226264
High affinity IgE receptor gamma chain (FcεR1γ)	1.0412484	0.6530127	1.114041	1.284749	1.6066537	1.818548	1.5489585	2.3567622	7.3274253	1.465312	1.800828	1.0979178	1.0979178	1.0979178	1.0979178	1.0979178
60S ribosomal protein L6	1.1541301	1.0463545	0.8834909	1.4071543	2.0311608	3.1690524	2.0825603	3.3272195	6.8327202	0.8515394	0.812272	1.0021703	1.0021703	1.0021703	1.0021703	1.0021703
IgE binding protein	0.9768735	0.9579175	1.0032585	0.8241898	1.285345	0.8057048	0.7766985	0.750516	0.6938148	0.9100967	0.9100967	0.9100967	0.9100967	0.9100967	0.9100967	0.9100967
Phase-1 RCT-149	1.1316131	1.3520124	1.0468636	0.8964477	0.608088	1.3836515	0.6955023	0.5906424	0.6571104	0.8534187	0.5044483	0.7667325	0.7667325	0.7667325	0.7667325	0.7667325
Cytochrome P450 2C11	1.1513452	0.9415544	1.216734	1.4126848	1.7535679	2.5119882	1.9007322	1.6812453	2.6750073	0.8345643	0.9571495	1.2343676	1.2343676	1.2343676	1.2343676	1.2343676
Uncoupling protein 2	1.0930597	0.9440995	0.9886786	1.4748895	2.1497088	2.6273787	2.114723	3.01397	3.709798	1.4247706	1.159303	1.1644197	1.1644197	1.1644197	1.1644197	1.1644197
Cofilin	0.871197	1.0128803	0.7998806	0.7604177	2.305854	2.4801142	1.9489345	2.6189246	3.599393	1.4341286	1.4761744	1.1045039	1.1045039	1.1045039	1.1045039	1.1045039
Alpha-ubiquitin	0.8236754	1.0240332	0.9324352	0.0492857	0.6051916	0.3736922	0.3531312	0.121243	0.0911533	0.6746129	0.2577314	1.4722239	1.4722239	1.4722239	1.4722239	1.4722239
Stearyl-CoA desaturase, liver	0.9234102	0.7995516	1.0906599	1.4082462	1.5909387	1.3445271	1.6849217	1.3219473	1.5524569	1.2949823	1.3989816	1.0915068	1.0915068	1.0915068	1.0915068	1.0915068
Glutathione S-transferase theta-1	1.0693065	0.7256504	0.899199	0.6822385	0.8412322	0.8879147	0.9541515	0.8456576	0.9843731	1.0997162	1.2339101	0.9960115	0.9960115	0.9960115	0.9960115	0.9960115
Alpha-1,2-fucosyltransferase	1.2864752	1.0545361	1.1958808	1.4220799	1.5587143	1.683029	1.5988415	2.1085773	2.26398	0.9424908	0.9150881	1.0282143	1.0282143	1.0282143	1.0282143	1.0282143
Phase-1 RCT-295	1.3520672	0.7600319	1.2817129	1.412557	2.0661442	2.4332964	2.1740801	2.5925894	3.4402854	1.2612083	1.172805	1.188067	1.188067	1.188067	1.188067	1.188067
Phase-1 RCT-164	0.8109757	0.9781462	0.915655	0.7173139	0.6097868	0.6459967	0.6459967	0.6459967	0.6022717	0.8264899	0.726209	0.8251646	0.8251646	0.8251646	0.8251646	0.8251646
Alpha-2-macroglobulin, sequence 2	1.0082139	1.0885571	1.0303004	1.5756878	1.1807061	1.350547	1.1978787	1.2064518	1.2711252	0.8522139	0.9353041	1.0009278	1.0009278	1.0009278	1.0009278	1.0009278
Biliverdin reductase	1.0093299	1.1575908	1.0073342	1.4558543	1.4956446	1.4730015	1.7364639	1.0909885	2.4420905	1.094426	0.8688998	1.0343641	1.0343641	1.0343641	1.0343641	1.0343641
Phase-1 RCT-121	0.8520106	1.0747252	0.8175781	1.337518	1.272791	1.4043186	1.4291171	1.2234522	2.0220513	0.7969895	0.9828327	0.9617955	0.9617955	0.9617955	0.9617955	0.9617955
Dynammin-1 (D100)	0.8340156	1.120753	0.8736473	0.8103132	0.8855177	0.7597103	0.7937414	0.7240465	0.6383119	0.7231427	0.7969895	0.9617955	0.9617955	0.9617955	0.9617955	0.9617955
Phase-1 RCT-192	1.2385508	1.1221333	1.0816047	1.2644708	1.4451277	2.895795	1.61397	2.4729211	2.4745862	1.0307498	1.0725373	0.8328632	0.8328632	0.8328632	0.8328632	0.8328632
Fatty acid synthase	0.7042397	1.0425545	1.0364006	0.185671	0.4651857	0.353178	0.3842216	0.3727616	0.292801	0.6792075	0.6444012	1.323987	1.323987	1.323987	1.323987	1.323987
Phase-1 RCT-211	1.0619961	0.9159868	1.145995	0.806349	1.3711129	1.5896095	1.6801641	1.6707944	1.9827275	1.0421301	1.0122888	1.0459171	1.0459171	1.0459171	1.0459171	1.0459171
Ribosomal protein S9	0.8234019	0.72817	1.1485629	1.7010472	1.8365332	1.8691975	1.6885059	2.45391	1.3643243	1.0726833	1.0726833	0.9382306	0.9382306	0.9382306	0.9382306	0.9382306
NADP-dependent isocitrate dehydrogenase, cytosolic	0.9017463	1.0899587	0.9205411	1.2810172	1.7258021	1.9716454	1.8209739	2.2309659	1.930493	1.5212191	1.3597091	1.0732509	1.0732509	1.0732509	1.0732509	1.0732509
Phase-1 RCT-57	0.9733607	0.8968882	0.8649588	0.7150968	0.6277614	0.7460676	0.730805	0.702263	0.7128446	0.9047353	0.8965242	0.8473314	0.8473314	0.8473314	0.8473314	0.8473314
Phase-1 RCT-36	0.9194362	0.9656686	0.9302421	0.751163	0.648755	0.648755	0.9798139	0.9798139	0.8430369	0.8901464	0.8630426	1.0800719	1.0800719	1.0800719	1.0800719	1.0800719
Apolipoprotein AII	0.7038816	0.7520074	0.8334872	0.3212048	0.6614288	0.2640552	0.5814197	0.5187933	0.427041	0.8288327	0.8088896	1.1043884	1.1043884	1.1043884	1.1043884	1.1043884
Phase-1 RCT-68	1.135655	0.9714704	0.9283909	0.9594756	1.0604378	1.2058328	1.2584047	1.3107048	1.8542246	0.9306436	0.8852686	1.0042715	1.0042715	1.0042715	1.0042715	1.0042715

Multidrug resistant protein-2	0.9974933	1.0645893	0.9895806	1.2983512	1.3384088	2.095334	1.3810167	1.2554348	2.5788338	1.4572119	1.3279049	1.2645026	0.8756045
Phase-1 RCT-39	1.1829119	1.0589617	1.0316714	0.8689088	0.9528488	1.098874	1.022172	1.2931985	1.2333638	0.95342	1.0918008	0.9819685	1.0749216
NIPK	1.0094617	1.0766558	0.9008725	1.2783798	0.6970967	0.7158685	0.7773125	0.6406918	0.7467874	0.7403993	0.970421	0.9560815	0.9496538
F1-ATPase beta subunit	1.0308927	0.9139375	1.248208	1.7148339	1.6371404	1.855724	2.0506713	2.1249478	1.6537527	1.2011381	1.2717896	1.134783	0.9798573
Elongation factor-1 alpha	1.2092833	0.859879	1.5513185	1.5673044	1.746723	2.0661118	2.2336087	2.8921114	2.6970434	1.3058046	1.2146926	1.0395337	0.9572727
Phase-1 RCT-24	0.9134617	1.1194144	0.9262558	0.7896304	1.9745862	2.4987068	2.022376	3.84797	4.50813	1.314074	1.176499	1.1323692	1.128898
Beta-tubulin, class I	1.2312861	0.9741628	1.1584315	1.0018606	4.114321	3.307786	3.0804756	4.762975	1.5409166	1.5895569	1.0206802	1.1128988	1.128898
14-3-3 zeta	0.8506739	1.1577379	0.8655887	1.4035993	1.3697712	2.007074	1.7307416	1.8510972	2.868237	1.3925308	1.2182678	1.2696929	0.9000934
Alpha-prothymosin	1.2757922	0.7121499	1.1358895	1.1481184	2.3500555	2.059401	1.8918374	2.8168075	3.0613465	1.2243212	0.8547036	0.7844808	0.8001834
Phase-1 RCT-58	0.8674049	1.1257992	0.8348993	2.8592405	2.3212914	2.439464	3.7249212	2.5047328	1.9916269	1.8510907	2.241978	0.855075	1.1232406
Phase-1 RCT-280	0.7609485	0.8663219	1.0634284	0.6416025	0.7658461	0.5882461	0.9213471	0.6521255	0.5464988	0.8003921	0.755285	1.0645941	1.1585186
Transitional endoplasmic reticulum ATPase	0.890222	0.9857353	0.8125947	1.3247716	0.983288	1.1367193	1.0257447	1.4501932	1.3989881	1.3178503	1.290935	1.1471248	0.9614236
Beta-actin	0.9867574	1.0856657	0.9177255	1.124766	0.8313722	1.453829	1.5194999	1.663105	2.4259205	2.3662174	1.0037292	1.297969	0.9865527
Thioredoxin-1 (Tpx1)	1.1278694	0.7612621	1.245626	0.8152441	0.7001238	0.7449531	0.7610063	0.7413985	0.7602284	0.755244	0.7509268	0.8146687	0.9865527
Phase-1 RCT-174	1.093979	0.853941	1.1628745	1.1627727	1.8711132	2.1258687	1.8288682	2.6355598	3.1734638	1.667067	1.3137206	1.2610158	1.1085948
Beta-actin, sequence 2	1.2104832	0.7723189	1.0436871	1.1627727	1.8711132	2.1258687	1.8288682	2.6355598	3.1734638	1.667067	1.3137206	1.2610158	1.1085948
Phase-1 RCT-109	1.0627174	0.7249818	1.215206	1.0776913	1.5906846	2.0808203	1.798432	2.5756073	2.8308856	1.247418	1.0086683	1.2070813	1.0471748
Phase-1 RCT-154	0.9251086	1.0520064	1.0028156	1.0160043	1.1351324	1.4523622	1.2609577	1.6232723	2.010588	1.0623173	0.8251892	1.0504011	1.09756
Hypoxanthine-guanine phosphoribosyltransferase	0.9787149	0.8862088	1.0672741	1.0172098	1.5020621	1.8090909	1.695081	1.9576074	2.0741048	1.2945741	0.9518978	1.099178	1.0529081
Phase-1 RCT-213	1.0037698	0.8988927	0.9267806	0.9790334	1.073699	1.2157297	1.1693386	1.0729957	1.4959016	0.9568179	1.0760739	0.9419831	1.1454931
Phase-1 RCT-260	1.1549801	0.9426817	1.0401055	0.7441521	0.7266741	0.6586147	0.7439498	0.5689204	0.5985763	0.7440004	0.7917618	0.7492576	1.0670183
Phase-1 RCT-12	1.0052476	1.0988791	1.0571955	1.2127181	1.053487	1.7814792	1.6303462	2.1883473	1.8576539	0.8521197	1.1397407	1.1007644	0.9501388
Phase-1 RCT-293	1.7621447	1.1750623	1.4691037	1.074947	1.5204513	2.0537834	1.5671492	1.5731025	2.5988476	0.7826382	0.7685795	0.867202	0.9427074
Ribosomal protein S8	1.2672893	0.8619207	1.4808013	1.54954	2.1811929	2.391112	2.0316868	3.622021	3.298959	1.2131903	1.0241473	1.0224441	1.1942743
Pyruvate kinase, muscle	1.5133658	1.0757774	0.9967832	0.8975138	1.3203523	1.4429157	1.2895957	1.393977	2.6244687	0.8705793	0.8925822	1.1804616	1.0721862
Nucleoside diphosphate kinase beta isoform	1.0298749	0.9143966	1.2315038	1.2472798	1.8498653	2.7569854	2.1220007	2.5074408	1.7934363	1.4334564	1.0256998	1.1908827	1.3663622
p55CDC	0.8491539	1.1898832	0.8275693	1.2174098	2.2936678	1.5719229	1.5075492	0.851024	2.416855	0.9142256	1.0827082	0.9810515	0.8647809
Phase-1 RCT-158	1.0477419	0.642767	1.053775	1.233008	1.28778	1.3806046	1.252535	1.8166472	1.4256625	1.012525	1.063913	1.1800071	0.8604296
Ribosomal protein L13A	1.1871866	0.6693688	1.3814647	1.2385345	1.9784277	2.3379884	2.0492268	2.5302038	2.828622	1.3317788	0.9380477	0.932083	1.1952212
Phase-1 RCT-258	1.0129975	0.9013203	0.9016503	0.9074028	0.8581604	1.0267221	0.9839225	1.168676	1.588064	0.8246077	1.0126122	1.0265058	0.987626
Insulin-like growth factor I	1.0847634	0.5040838	1.2665367	0.7411249	0.8949658	0.7737891	0.726454	0.7248876	0.4833642	1.4077797	1.036257	0.9182933	0.762094
Cytochrome P450 3A1	0.9971038	0.9498345	0.9762051	0.466176	0.9329636	0.4985851	0.8332987	0.4605225	0.1873848	0.7314621	0.9375491	0.5838507	0.9711742
Ribosomal protein L6	1.191235	0.8703739	1.3838125	1.4302766	2.0540235	2.0587942	1.8685595	2.8680484	2.9866326	1.2281413	1.1216782	1.0852697	1.133198
Organic cation transporter 3	0.9871021	0.779264	1.3328048	1.041613	1.0820467	1.5868146	1.0697105	1.6903996	1.8326681	0.9150084	1.0142077	0.9462636	1.068411
Calpain 2	1	0.988207	0.894072	0.9937571	1.0503534	1.3379524	1.1883557	1.5412446	0.890767	0.7689698	0.9755877	0.9363812	0.878258
Phase-1 RCT-102	0.8641087	1.1920191	0.8887555	0.5474128	0.6616263	0.4557648	0.4088608	0.3625044	0.2816515	1.0833154	0.9482374	0.8687333	0.878258
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	1.2540687	0.9631533	1.1441816	0.8780341	0.8772436	0.7735088	0.7971839	0.7287294	0.5820092	0.921303	1.0470701	0.9490277	1.0415548
Phase-1 RCT-227	1.3205866	0.7479386	1.3931638	1.1002557	1.1372682	0.6574865	0.6973003	0.8240477	0.5551574	1.0955145	0.9453292	0.97163	0.8116638
N-Hydroxy-2-acetylaminofluorene sulfoxidase (STC1)	0.9928929	1.0045737	1.0563786	0.768902	0.8297827	0.6280173	0.7041128	0.7662242	0.5146129	1.0394673	1.1583676	1.012859	1.0534015
Cathepsin S	1.1647305	1.0746688	0.9238492	1.8819932	1.485594	1.5859995	1.3345643	1.4216883	1.9187645	1.0114268	1.0867896	1.4757975	0.9363895
Apolipoprotein CIII	0.9225768	0.6180133	1.1737684	0.721675	0.7254869	0.5979998	0.5359058	0.506324	0.4101273	0.9812037	0.8762076	0.7562324	0.9743487
Cytochrome P450 2A3	0.9694154	1.4075181	0.9996356	1.4222632	0.5872005	0.3663773	0.5230479	0.5494803	0.4875849	0.9457327	1.0527864	0.7082473	0.9731413
Cytochrome P450 2C23	0.8115698	0.9070762	0.9272316	1.6815431	1.7709253	0.7873204	1.2205002	1.0780877	1.9086638	1.4526384	0.9391119	0.884924	0.8498911
Apolipoprotein C1	1.1854701	0.871711	1.760457	1.3161744	1.043584	0.7207968	0.6545721	1.2417547	0.9166297	1.0040704	0.8870569	0.9035971	1.1416918
Betaine homocysteine methyltransferase (BHMT)	0.7105645	0.8121645	1.2323554	0.5683478	1.2205142	0.4922842	1.060384	0.6336106	0.3860058	0.8964349	0.7675554	1.357828	1.0972499
Paraoxonase 1	0.8384637	0.8558648	1.0778369	1.5912638	1.0961878	0.9233965	0.9818986	1.0744874	0.6814154	1.3704696	1.3983389	0.996643	0.8961164
Phase-1 RCT-207	0.8596423	1.1037924	0.7363014	0.8862728	0.9453741	1.1639957	1.1102386	1.2155129	1.7662506	0.6879879	1.2464557	0.9126077	1.0488476
Cathepsin B	1.2638927	0.8411813	1.5163757	1.4823563	1.7322345	1.7976509	1.862167	2.3655205	2.6556904	1.4265133	0.9782832	1.1089082	0.9964173
Phase-1 RCT-144	0.8681541	1.143697	0.9131672	0.9922551	0.8415771	1.0370655	1.0904694	1.3288761	1.8082999	0.7942173	0.855005	0.8572915	0.8868567

Alpha-1 microglobulin/bikunin precursor (Ambp)	1.1911471	0.6508022	1.5434134	1.2708362	1.3203362	0.9021991	0.9105306	1.2360779	0.727944	1.3424433	1.1163338	1.0670485	0.8851687
Cyclin D1	0.9222618	1.1631396	0.9772311	1.0805936	1.1734641	1.2697256	1.5671031	1.241705	3.0850465	1	1.0217469	1.2867069	0.6341727
Presenilin-1	1.3544774	0.7770805	1.1829492	1.2520206	0.7326231	0.5660425	0.6804338	0.7061009	0.3574869	1.0326602	0.8008647	0.7378825	0.6171431
Protein tyrosine phosphatase, receptor type, D	1.5792198	0.8281282	1.5040833	1.0379419	0.8362327	0.5895201	0.7711018	0.9046126	0.634675	1.4818047	1.6166271	1.2708141	0.8855172
Multidrug resistant protein-1	0.9977781	1.1051728	1.0062808	1.4743623	1.3101763	2.0466535	1.5871942	1.4042009	3.4925525	1.2676256	1.2250693	1.1687099	0.8691108
Cathepsin L, sequence 2	0.680428	0.8941622	1.0060538	2.089931	1.5473577	1.9024348	1.9036177	2.4280807	2.6707878	1.2845764	1.2382425	1.2356796	0.9940368
INK1 stress activated protein kinase	0.903923	1.0710346	0.9160275	0.830359	0.79033	0.5981025	0.7460587	0.5398695	0.7989695	0.8314123	1	0.9673944	1
Phase-1 RCT-43	0.8396744	1.1015825	0.8439261	1.0629795	1.1265796	1.1300827	1.1315527	1.5296282	1.24384	1.072839	1.0529513	1.1685102	0.8653286
Tissue plasminogen activator	0.9608048	0.9879285	0.9127779	0.7143318	0.9607958	1.2609117	1.3524277	1.6263255	1.6341877	1.0224247	0.9295122	0.8748591	1.0170196
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.7871512	0.8152418	0.8622445	0.9145531	0.9966877	1.5702314	0.8497846	0.9852406	1.1941255	0.8046921	1.078883	0.989395	1.0942103
Phase-1 RCT-173	0.8185605	1.0346228	0.780804	0.9662333	1.2572962	1.3455532	1.6250732	1.2371801	1.4821053	0.933365	0.8453962	0.9161639	1.147203
Omitine decarboxylase	0.9477514	1.0504317	0.8138054	0.9052507	1.2398201	1.4380931	1.2974095	1.1118157	2.7286115	1.2385048	1.2645603	1.0781218	1.0690637
Zinc finger protein	0.9846932	1.0257689	0.8415464	0.9535018	1.0057323	0.9653457	0.9935393	0.8843341	1.5186821	0.7472666	0.9014929	1.0574871	1.1578028
CDK108	0.9503787	0.9254795	0.8506061	0.622216	0.6018497	0.7659586	0.7301804	0.7228736	0.7112539	0.8987859	0.8785282	0.9662641	0.9768586
Phase-1 RCT-117	1.3768348	0.9247198	1.3994189	0.7237371	0.6941465	0.8631166	0.826264	0.6187307	0.6831894	0.6773781	0.6856109	0.9430318	1.0860003
(Phase-1 RCT 88)	0.9225458	0.8668	0.8476756	0.7185122	0.637303	0.7663073	0.7439179	0.6690359	0.5893254	0.7742356	0.7826729	0.9003356	1.0104785
Aquaporin-3 (AQP3)	0.9130583	1.0244367	0.8931972	0.7178769	0.6380068	0.7386072	0.7129144	0.7060642	0.621568	0.7905171	0.8615832	0.8388196	0.9116323
Cholesterol esterase	0.661257	0.8720049	0.6955925	0.6183295	0.9308044	0.5596929	0.5066437	0.8762791	0.5370217	1.259425	1.3638359	0.7520491	0.8667786
Ribosomal protein S17	1.2848841	0.8952596	1.2724836	1.3301822	1.8066574	2.2792068	1.8467163	2.7267776	3.1437125	1.1027694	0.957657	0.9846721	1.337588
Poly(ADP-ribose) polymerase	0.8329671	1.1241857	0.8571892	1.0052885	1.049634	1.11032	1.2370495	1.0495669	1.6059528	1.1377742	1.0300105	1.1434295	0.9962289
Annexin V	0.9026006	1.0185215	1.0519843	1.011234	1.3029742	1.6915519	1.11355	1.1952262	1.5578784	0.8322222	0.8662456	0.8842881	0.8909894
Phase-1 RCT-33	1.0092535	0.9252423	1.0794586	0.6658546	0.9914093	1.1227336	1.2551826	1.1844825	1.1145512	1.2883542	1.2418574	1.5663332	1.0947392
Phase-1 RCT-61	0.8753344	1.029555	0.8654484	0.9193109	0.7667397	0.9801942	0.983116	1.0256864	0.9557548	0.872462	0.8422263	0.9308941	1.0365213
Retinol dehydrogenase type III	1.1026949	0.6522998	1.0760951	1.060804	1.1598647	0.8834291	0.8571855	1.1780887	0.8190055	1.6884208	1.1323159	0.9542885	0.8377162
ATPase inhibitor (rat mitochondrial IF1 protein)	0.7936943	0.7348653	0.9474369	0.7467454	1.1967684	0.861966	0.6824868	0.8373012	0.6273171	1.0888771	0.9271033	0.8692225	1.0659472
Thymidylate synthase	0.9183242	1.1489766	0.8080981	1.3184234	1.0901914	1.1578175	0.9488055	0.824193	1.5885664	0.8084859	0.8131532	0.8942529	0.9801306
Interleukin-18	0.832526	1.0511533	0.943734	0.9622389	0.857473	0.7411448	0.6822019	0.4462648	0.7504155	0.7430379	0.6848736	0.893248	1.0832968
Lecithin:cholesterol acyltransferase	1.2841854	0.6714763	1.6467121	1.3141036	1.1537783	1.1779335	1.1241007	1.2059226	0.9650487	1.4994947	1.311094	1.0426079	0.8403988
Contrapsin-like protease inhibitor (CPI-21)	1.0213906	0.5793659	0.8101082	1.2026023	1.0287324	0.8965508	0.7611999	0.8055622	0.5646713	1.4457471	1.3165109	1.1340977	0.8018087
Proliferating cell nuclear antigen gene	0.9487455	1.1877397	0.9205411	0.8061791	0.9406393	0.8990107	1.2327284	1.3481904	2.810761	0.9530206	0.8903654	0.8840921	0.883243
Phase-1 RCT-230	1.1829228	1.0396498	1.116549	0.7059123	0.8481833	0.9162688	0.96313	0.8218711	0.9556361	0.717357	0.7309389	0.8593866	1.1908388
Cytochrome P450 2D18	1.2508193	0.7130977	1.4035865	1.3248413	1.1307435	0.8324607	0.7757452	0.8578324	0.6840616	1.2730256	1.2386988	1.0121467	0.8781995
Phase-1 RCT-48	1.1674159	0.7669359	1.3654498	0.7806346	0.9738709	0.8846359	0.9067848	0.9404671	0.7023994	0.7884075	0.8956642	0.7438678	0.9328737
Phase-1 RCT-292	0.9146635	1.0942997	0.9529955	0.9158368	0.7816947	0.8858844	0.8654177	0.8700044	0.837733	0.7441289	0.8901258	0.8980454	1.0267116
Argininosuccinate synthetase 1	0.8214243	0.7224103	1.2443393	1.1917964	1.0736677	0.592599	0.9541157	0.9406552	0.6325415	0.9126498	0.7825973	1.1492939	0.9895145
C-reactive protein	1.5009211	0.6969331	1.4725935	1.1384034	0.9096397	0.7258303	0.8542328	1.0970002	0.628374	1.4538903	1.1412189	0.9820909	0.8478425
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint													
(1)	CAD 1	CAD 2	CAD 2	CAD 2	CAD 2	CAD 2	CAD 2	CAD 2	CAD 2	CAD 2	CAD 2	CAD 2	CAD 2
Compound-Dose	628	629	630	631	632	633	634	635	636	637	638	639	640
Animal Number	no	no	no	no	no	no	no	no	no	no	no	no	no
Liver Toxicity Necrosis Classification													
Gene Name													
Osteocalcin	1.0665325	1.172157	1.7863933	1.1931956	1.2394882	1.1410328	1.1045834	1.0791085	2.0058315	1.9928043	1.8306382	7.446975	5.5573606
Stathmin	0.8924686	1.1206372	1.5990474	1.1654342	0.9641957	0.9634252	0.9573752	1.0127932	1.4218938	1.7862334	1.3602635	1.7461764	2.222987
Calpain I heavy chain	1.0345411	1.0814689	1.3812785	1.1311082	1.1323539	1.314164	1.3332907	1.2505677	1.2860685	1.3674496	1.208787	2.5280177	2.8906698
Phase-1 RCT-179	0.9301364	1.148666	1.2391739	1.0653725	0.9198718	1.1506094	1.0745231	1.1404939	0.9691103	1.2330016	0.9291534	1.2284303	1.5598841
Phase-1 RCT-107	0.8175727	1.0465444	0.9548544	0.8368409	0.8397681	0.8367502	1.3881271	1.0904388	0.6383804	0.5097365	0.8211671	0.4835037	0.3759924
Heme oxygenase	4.4283924	1.9043402	3.7300348	5.5524483	2.7775517	1.0551637	0.9415708	0.9148829	1.2192881	1.2521654	1.2716236	2.6257865	2.5839436
Collagen type II	0.7092298	1.3465931	1.2968094	0.8572667	0.8372812	1.3327724	0.9586921	1.0574185	1.7398632	1.858164	2.2144415	2.5078828	5.842111
Phase-1 RCT-81	1.1500531	1.1848251	0.9784027	1.1732895	1.0401231	1.5941306	0.9886299	0.9945181	0.9879189	0.9824467	1.0782885	0.5656784	0.5970601
Glycine methyltransferase	0.7891117	1.5491124	1.1693579	0.8255915	0.6663612	0.3698674	1.3155429	1.214059	0.498161	0.3624067	0.7805239	0.2308108	1.651169
Cystatin C	0.8507324	0.7998715	1.0406905	1.1595317	0.9524197	0.9637139	0.8434849	0.8354943	1.1297824	1.1546545	1.2230195	1.4451475	1.7024032
Melanoma-associated antigen ME491	1.3276835	1.0112805	1.225988	0.9691445	1.2237853	1.0808668	1.1949559	1.0900705	1.4723765	1.2686578	1.2509873	2.8335657	2.332399
Phase-1 RCT-146	1.0154578	1.0528523	1.2360928	1.0033671	0.99033	1.127627	1.0746533	1.0489885	1.0828171	1.280334	1.1679989	1.6007707	2.056257
Gamma-actin, cytoplasmic	0.8753353	0.7878638	0.8837703	1.2576299	1.1429021	1.0803655	0.5190387	0.8082217	1.2430302	1.0796582	0.9244675	2.1523516	1.6232893
Adenine nucleotide translocator 1	0.6183163	0.6674933	0.6030012	0.5993428	0.8427052	0.735699	0.6984728	0.7973023	1.0451312	0.9885427	0.9603996	1.7524388	1.7668253
Thymosin beta-10	1.1918932	1.2875615	1.3832144	0.872734	0.7290412	1.095068	0.8884684	1.1028716	1.0451312	0.9885427	0.9603996	1.7524388	1.7668253
Insulin-like growth factor I, exon 6	0.9267264	1.2463405	0.9409041	1.0994027	1.0724165	0.7080874	0.9634857	0.7843484	0.7107508	0.8337696	0.811426	0.4083999	0.4208347
Phase-1 RCT-78	1.1898044	1.1710012	1.0400124	1.1653006	0.9329683	1.0697051	0.945805	0.9296351	0.9067008	0.8544399	0.8181267	0.6618262	0.6763603
Alpha-2-microglobulin	0.2089558	0.4426349	0.1687039	0.2409788	0.2747192	0.2093138	0.5652893	0.5650264	0.5423474	0.4783321	0.4038144	0.0455277	0.0387278
High affinity IgE receptor gamma chain (FcER1gamma)	1.2941557	1.4625243	1.6897525	1.502082	1.3803049	0.867802	0.83689	0.910727	1.1453834	1.254547	1.1729321	1.4901124	1.7929894
60S ribosomal protein L6	1.3426235	1.3117093	1.1569416	1.0598022	0.8972784	0.8809056	0.7019345	0.8335336	1.1025754	1.3074186	1.038103	1.6391575	1.9380125
IgE binding protein	1.7700777	1.6814594	2.5282478	1.9515463	1.4337697	1.026671	1.0513932	0.9734221	1.1097196	1.1591631	1.1494908	2.9945643	2.700304
Phase-1 RCT-149	1.4890168	1.464944	1.381437	1.9677689	1.9688145	0.9851762	0.9285048	0.983558	0.8937365	0.8344536	0.8894683	0.7632833	0.7374014
Cytochrome P450 2C11	0.6028097	0.9477837	0.4205116	0.9673994	1.1038461	0.9508049	0.891623	0.7622578	0.7230483	0.6026726	0.6021777	0.1812755	0.4475355
Uncoupling protein 2	0.9717299	1.117478	1.218877	2.257946	0.9121676	1.4547507	1.121657	1.3100665	1.11779	1.0441632	1.1008842	2.0523226	2.3215885
Cofilin	0.8923175	0.8437548	1.0488541	0.9605853	0.9933179	0.8451205	0.8429514	0.898046	1.0684772	1.2092881	1.1345481	1.2444086	1.466486
Alpha-tubulin	1.1923523	1.0086633	0.6858735	0.6690682	0.6693219	1.1977386	0.8008812	1.0400248	1.6633117	1.3153723	1.3282275	2.284918	2.1531665
Stearyl-CoA desaturase, liver	0.6798194	0.473863	0.2561155	0.2080647	0.1019947	0.4603942	0.5290524	0.5887289	1.0701383	0.229748	1.797065	0.1199332	0.1398464
Glutathione S-transferase theta-1	0.9494705	0.9955605	0.8407757	0.6974619	0.7902406	1.2562506	1.3810898	1.8597336	1.6880232	1.5281421	1.2046309	0.8265462	0.9107989
alpha-1,2-fucosyltransferase	1.819756	1.6383902	1.378852	1.4670113	1.0978142	0.8463609	0.9678508	0.927978	0.8444331	0.7947701	1.065526	1.6298089	1.8006104
Phase-1 RCT-138	1.0817136	1.3532567	1.6149446	1.334211	1.2496605	0.7483162	0.8762695	0.8806634	1.0421757	1.1127105	1.1065526	2.5078368	
Phase-1 RCT-295	1.2761326	1.3867217	1.609847	1.5710978	1.603104	1.2868883	1.095984	1.24673	1.4656634	1.538085	1.2423893	2.4677396	2.5078368
Phase-1 RCT-164	0.9940795	0.9992349	0.5770891	0.9048551	1.0635598	0.7692116	1.005794	0.9086702	0.9232338	0.7619515	0.8737822	0.4343247	0.4640241
Alpha-2-macroglobulin, sequence 2	1.1143765	1.5776662	1.4567159	1.7416406	1.271991	0.6311336	0.5656821	0.5982199	1.1003363	1.1233308	1.0272374	1.2770689	1.4651927
Biliverdin reductase	0.8462465	1.0904614	1.036193	1.367571	1.0836538	1.4541475	1.2521261	1.2213544	1.1003774	1.16425	1.2566149	1.7628571	1.6647373
Phase-1 RCT-121	1.0005095	1.1378088	0.7761434	0.7417699	1.0111972	1.318387	1.0826743	1.1381092	1.0425304	1.0895827	1.0205204	1.4903078	1.8977509
Dynamin-1 (D100)	0.9464074	0.8948134	1.0780069	0.9045234	0.9281922	0.8029439	1.1082192	0.8801926	0.9682944	1.041187	0.9091677	0.8496497	0.7830857
Phase-1 RCT-192	0.9806716	1.190821	1.3025424	1.2055568	1.2325276	0.9189155	0.8116658	0.9852801	1.3794179	1.4602845	1.1725944	2.8850422	2.5080056
Fatty acid synthase	1.6123703	1.0368274	0.6735902	0.7511801	0.8439027	0.8489452	0.4697994	0.5170938	0.9471612	0.2838945	0.9246498	0.4349518	0.3518697
Phase-1 RCT-211	1.069343	1.3357502	1.2159463	0.9760068	0.8419901	1	1.241617	1.1506841	1.3178092	1.4913637	1.065474	1.7782868	1.7880337
Ribosomal protein S9	0.9431822	0.9310616	0.9542063	1.0317105	1.055616	0.9486672	0.8111987	1.0082144	1.0928938	1.3019788	1.143338	1.5533175	1.7631791
NADP-dependent isocitrate dehydrogenase, cytosolic	1.3226228	1.2645937	1.3435832	1.3449228	1.332339	0.5872359	0.7139651	0.6941201	0.9715809	1.246839	0.9187357	0.9495956	1.1231108
Phase-1 RCT-57	0.8870161	0.9374613	0.6754813	0.6481478	0.9198718	1.2267358	1.3001399	1.2082529	0.8555652	0.7164716	0.8886977	0.5672821	0.487289
Phase-1 RCT-38	0.9873989	1.0683182	1.1951753	0.8620661	0.893429	0.8796822	0.9222881	0.9113312	0.970076	0.8312611	0.8353079	0.7629314	0.84219
Apolipoprotein AII	1.914278	2.6755283	2.7568767	1.6149586	0.6085442	0.243958	0.5343935	0.4787206	0.7002696	0.3586386	0.4930623	0.2236521	0.2851685
Phase-1 RCT-68	1.1438953	1.1476239	1.2638475	1.2146407	1.1124693	1.3149091	1.1426486	1.1229688	1.1710354	1.3016754	1.0428538	1.3228114	1.3562137

Multidrug resistant protein-2	0.8735251	0.7224113	1.0488412	0.9148727	1.0541233	2.6751242	3.2041466	2.5671992	1.3324882	1.3615278	1.4796067	2.6763613	2.0682933
Phase-1 RCT-39	1.0485926	0.9118205	1.0535443	1.0516324	1.0853375	1.3292146	1.3084326	1.2386647	1.1758094	1.1633307	1.1703159	1.6035161	1.4508458
NIPK	0.7622229	0.8071324	1.0108167	0.8794946	0.9776922	0.9597599	1.0365531	0.8674067	0.8205677	0.8217452	0.8249558	0.8161208	0.845766
FL-ATPase beta subunit	1.1004356	0.8759903	0.7737029	1.0615368	0.9447635	0.727937	0.8668815	0.9297035	1.3603851	1.4690974	1.6168358	1.6101763	1.5368866
Elongation factor-1 alpha	1.5562835	1.0978409	1.1894644	1.3560357	1.4248784	0.9310816	0.8631834	1.0672668	1.2581617	1.1725564	1.1921073	1.6285516	1.6478585
Phase-1 RCT-24	0.6409109	0.9921196	1.2730005	0.8852998	0.9343848	1.1576704	0.989894	1.0271378	1.9807458	1.4645808	1.4525738	2.6398728	2.2371125
Beta-tubulin, class I	0.4336131	0.6041121	1.0210123	0.7361491	0.9237004	1.049175	0.9026393	0.9322754	2.03773	1.512577	1.7273317	2.8189354	2.4194788
14-3-3 zeta	0.7570067	0.8971722	0.8197048	0.8324761	0.9610177	1.8772742	1.6516932	1.6336448	1.215421	1.4221846	1.0976837	1.8617687	1.8765289
Alpha-prothymosin	0.4344814	0.5852366	0.8201228	0.6668491	0.7237673	0.7955514	0.7755514	0.8434385	1.1708087	1.4159213	1.0929669	1.2786278	1.654276
Phase-1 RCT-58	0.7332363	1.0820198	0.5836889	0.6520307	0.5677207	1.1348852	1.1368313	1.2213388	1.4791176	1.5625839	1.1261069	1.2397317	1.2371313
Phase-1 RCT-290	0.7725083	0.9245088	0.634636	0.8556271	0.5994872	0.4366021	0.8605556	0.5210409	0.6957201	0.4584549	1.0227278	0.4113167	0.9598359
Transitional endoplasmic reticulum ATPase	0.8493851	0.844127	0.7615376	0.7955564	0.8799557	0.9157009	0.8976296	0.9132015	0.995198	1.0071833	1.034594	1.0158985	0.9598438
Beta-actin	0.5598569	0.7880942	0.7334646	0.9184589	0.8589835	0.7783018	0.7764201	0.9065911	1.0490075	1.1167916	0.9045495	1.3035374	1.4416311
Thioredoxin-1 (Trx1)	1.1017902	1.0504053	1.2511195	1.1940989	0.8589835	0.7783018	0.7764201	0.9065911	1.0490075	1.1167916	0.9045495	1.3035374	1.4416311
Phase-1 RCT-174	0.2828465	0.8686569	0.912202	0.762703	0.8008008	0.9501311	1.2181208	0.998861	0.956472	0.9130506	1.1261696	0.6575568	0.6851393
Beta-actin, sequence 2	2.1499083	2.8420577	1.9619273	1.7854544	1.6174324	0.8185982	1.0506712	0.9628638	1.1022388	1.0939122	1.0216124	1.4954778	1.4311703
Phase-1 RCT-109	1.5853276	1.9990431	1.7071104	1.2716018	1.0265929	0.9317502	0.9376971	0.9628638	1.1022388	1.0939122	1.0216124	1.4954778	1.4311703
Phase-1 RCT-154	0.9735604	0.6455876	1.0649309	0.8623003	1.0082271	1.2482911	1.2396216	1.1304674	1.0653132	1.3830305	0.956562	1.3780336	1.6100153
Hypoxanthine-guanine phosphoribosyltransferase	0.7480323	1.0307884	1.042244	0.7685344	0.7994807	0.7278966	0.699069	0.7886922	1.0057204	1.0234536	1.0276684	1.4189752	1.2745352
Phase-1 RCT-213	1.0399321	1.1467838	1.0455005	0.9837884	1.3868836	1.0761336	0.882856	0.9799548	1.03653	1.034798	1.0038812	1.2449272	1.308129
Phase-1 RCT-280	0.9482416	0.9374355	0.8566294	1.0923365	1.1921955	1.4746999	1.0786743	0.9314588	0.9184878	0.9462087	0.9011378	0.782112	0.782112
Phase-1 RCT-12	0.6370665	0.8158476	0.9881123	0.7687932	1.0772015	1.3627151	1.1982106	1.1830252	1.5257219	1.3157864	1.4784877	1.9081862	1.7596933
Phase-1 RCT-283	1.1559908	1.3943821	1.5458153	1.3557288	1.4896467	1.0327646	0.9481686	1.0649359	1.0604073	1.1000072	0.999013	1.4766525	2.2657673
Ribosomal protein S8	1.5600296	1.6450208	1.6552973	1.901087	1.3777891	0.7803683	0.7400243	0.8297668	1.2437532	1.3448913	1.0737239	1.7089017	2.198003
Puruvate kinase, muscle	1.5598345	1.3298112	1.3820508	1.3680538	1.3470265	0.915318	0.9119648	1.2081472	1.3119549	1.2710446	0.8315749	1.8411086	1.6721833
Nucleoside diphosphate kinase beta isoform	0.9030003	1.1117191	1.319308	1.1423928	1.1922361	1.2966167	1.048933	1.091483	1.180258	0.8315749	1.0811096	1.8411086	1.6721833
Phase-1 RCT-156	0.9854597	1.0472499	0.9969624	1.0804905	1.1207283	0.8971817	1.1516382	0.9959588	0.9827669	1.0037644	0.9677312	1.0815375	1.0870847
Ribosomal protein L13A	1.197738	1.3888159	1.8730823	1.0758986	1.2042919	1.0160464	0.8730946	1.0321352	1.0548769	1.0548769	0.9730259	1.5813111	1.5214164
Phase-1 RCT-258	1.1241978	1.355168	0.8524649	0.8242143	0.8773513	0.9443353	0.9046371	1.0051786	1.0333644	1.0528334	0.9677312	1.0815375	1.0870847
Insulin-like growth factor 1	1.2053192	1.0882589	0.9116887	1.3351289	1.0724293	0.5720252	0.7364326	0.5989702	0.8062836	0.852884	0.748143	0.4339331	0.4749387
Cytochrome P450 3A1	1.7691336	1.0047569	0.8517258	0.8732747	1.1884547	0.5063222	0.9456735	1.0653609	1.0453829	1.3726258	0.8011971	0.698145	1.0172484
(Ribosomal protein L6)	1.227273	1.5133053	1.6339314	1.7955631	1.1418878	0.7901301	0.7459639	0.8311378	1.1377889	1.2077099	1.0808362	1.5614978	1.9835923
Organic cation transporter 3	1.3185735	1.2200881	0.9468162	0.8936224	0.9383927	0.9368558	0.7920389	0.8931727	1.1210359	1.2935792	1.055209	1.5646762	1.8374114
Calpain 2	1.156135	1.2216287	1.2764401	1.3132287	1.0137584	1.2344598	1.0288367	1.0828367	1.0711572	1.0701485	1.0341055	1.3630821	1.4449883
Phase-1 RCT-102	0.4241245	0.4243819	0.3396031	0.4810491	0.4334896	0.4859798	0.69264	0.4403092	1.074388	0.7677458	0.6492831	0.5089333	0.5532627
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.8217949	0.8817737	0.7091222	0.928183	0.8012734	0.5358217	0.9412717	0.8191195	0.8312632	0.9449444	0.9103911	0.5623143	0.45571
Phase-1 RCT-227	0.8550361	1.015633	0.7628054	0.8020855	0.7790318	0.9495751	1.0038046	1.0346432	0.8387797	0.9129243	0.7456406	0.6174007	0.8470146
N-hydroxy-2-acetylaminofluorene sulfoltransferase (ST1C1)	0.8991498	0.9297743	0.6120065	0.8335594	0.8462507	0.4344387	0.9115717	0.7448509	0.8289094	0.8834655	0.7622323	0.2938188	0.3189412
Cathepsin S	1.7859417	1.3383412	1.5229292	1.6338322	1.4315379	1.0652981	0.93567	0.998913	1.0891922	1.1142695	1.1235511	1.574932	2.0671692
Apolipoprotein CIII	0.8928502	0.9491501	0.5910866	0.7155482	0.8300238	0.5102383	0.8206225	0.6803416	0.8295034	0.7365158	0.9398652	0.6701827	0.5761476
Cytochrome P450 2A3	1.0187438	1.131459	0.6410759	0.8925564	1.0149252	0.7451435	0.4940452	0.4994638	0.9930812	0.9081992	0.8914011	0.7303426	0.7709543
Cytochrome P450 2C23	1.0235347	0.8270444	1.1638527	1.5414809	1.084284	0.5899407	0.9144161	0.8707982	0.7163075	0.6828682	0.8536478	0.3115271	0.4020347
Apolipoprotein C1	0.8929913	0.6479754	0.782818	0.6028861	0.7147776	0.2718542	0.4962293	0.4134154	0.6146088	0.8989736	0.7776749	0.265843	0.2353288
Betaine homocysteine methyltransferase (BHMT)	0.5125967	1.1553246	0.3418913	0.6463215	0.2206169	0.2256003	0.7926675	0.7313349	0.6481938	1.0057766	0.3718656	0.2902318	0.466518
Paraoxonase 1	1.1347339	0.7494653	0.836076	1.5015268	0.9968892	0.4986134	0.6601311	0.5678107	0.8054301	0.9786457	0.950003	0.4079569	0.456518
Phase-1 RCT-207	0.8707481	0.9999999	0.9717801	0.7377786	1.0055585	2.829484	1.9779414	1.771283	1.0666054	1.2031789	1.0610528	1.4128148	1.4194102
Cathepsin B	1.9318571	1.7701547	1.5647726	1.9731442	1.7893926	0.8155689	0.8912108	0.8324128	1.0605543	1.2677077	1.028554	1.3978731	1.3618654
Phase-1 RCT-144	1.0188708	0.9428757	1.0447061	0.9408286	1.0075805	1.0124658	1.0343456	0.8233654	1.1031113	1.1516855	1.038018	1.3564309	1.3618654

Alpha-1 microglobulin/bikunin precursor (Amp)	1.2558982	1.1286409	0.9866916	1.2606028	1.0718158	0.7678008	0.8660349	0.9077508	0.912204	0.9538372	1.0835345	0.4672214	0.4678266
Cyclin D1	0.7017316	0.710397	0.7399339	0.7142174	0.7844181	0.6702117	0.9803798	0.9509333	1.3488333	1.578839	1.4743768	2.4036522	2.7815921
Presenilin-1	0.5738198	0.7886719	0.7456757	1.0641698	0.8211668	0.611732	1.0616295	0.6864462	0.9680051	0.7020629	1.132715	0.3554994	0.2634515
Protein tyrosine phosphatase, receptor type, D	1.89895	1.5084424	1.3458662	2.1130354	1.7318372	0.7574692	0.8938432	0.8928595	0.7922792	0.8701066	0.8656213	0.2819095	0.3406438
Multidrug resistant protein-1	0.6721649	0.7169963	1.1628461	0.8237516	1.4737546	0.3900235	2.570621	0.3059984	1.3651092	1.2567679	1.489048	2.4378831	1.7078879
Cathepsin L, sequence 2	1.3227149	1.1131485	1.7454609	2.0025926	1.6037253	1.2681712	1.2636157	1.6109528	0.9921255	0.8381607	0.1015028	1.2866653	1.2415895
JNK1 stress activated protein kinase	1.2810981	1.0812018	0.8280049	1.0607092	1.0062686	0.6053468	0.7656406	0.8061491	0.9651629	0.865966	0.965052	0.68918693	0.6918693
Phase-1 RCT-43	0.7531917	0.8893328	0.7254726	0.921966	0.9468871	1.1680924	1.0411214	1.0983555	0.9652509	0.9468797	0.9576113	1.0312853	0.9749366
Tissue plasminogen activator	0.9577281	0.9877754	1.0392473	0.9857702	1	0.8979803	0.8767258	0.9667089	1.0353717	1.0576382	1.0456386	1.0466285	1.206319
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.9388976	0.9410999	0.8059041	0.812289	0.8803934	1.1525109	1.0285478	1.1984125	1.1691686	1.3387586	1.1723818	1.5057485	1.8342779
Phase-1 RCT-173	0.9845881	1.0495013	0.820447	0.9587866	0.9878386	0.8971723	1.0118228	0.9821044	1.1899408	1.3671306	1.293887	1.6699445	1.737661
Omitline decarboxylase	0.6182745	0.8202696	1.02686	0.8163866	0.9870223	2.0073037	1.5556148	1.7868443	1.0923878	1.2409372	1.1308789	1.3873127	1.1308532
Zinc finger protein	0.9621174	1.0439926	0.9575198	0.8295651	0.934473	1.42712	1.173207	1.1812947	1.03759	1.1270909	0.9707479	0.9843287	1.0974257
CDK108	0.9738033	0.7280162	0.9559073	0.8496109	0.9569575	1.1121418	1.1969793	1.0218396	1.1768365	0.966158	0.9107066	1.3009584	1.2725173
Phase-1 RCT-117	1.6002544	1.3578453	1.398219	1.3642255	0.9797704	0.89484	0.9389309	1.0350174	1.0443425	0.7876722	1.1318004	0.7288967	0.6588555
(Phase-1 RCT 98)	0.8248341	0.8286338	0.8260918	0.7252418	0.8427538	1.059587	0.9817427	0.9040024	0.8421468	0.877265	0.9126553	0.7851433	0.759188
Acuaparin-3 (ACP3)	0.9641057	1.0068259	0.9723379	0.9904214	0.9432337	0.9361457	0.9744276	0.9123896	0.8421468	0.877265	0.9126553	0.7851433	0.759188
Cholesterol esterase	0.3808171	0.4118466	0.3168104	0.4605023	0.4127513	0.7597603	0.954551	1.0782436	1.004791	0.9382269	0.8601152	0.4412271	0.595128
Ribosomal protein S17	1.4355613	1.5461757	1.5287377	1.8742467	1.373289	0.7041142	0.5681906	0.6507357	1.2143977	1.221496	1.1047949	1.9363995	2.0189354
Poly(ADP-ribose) polymerase	1.0184307	0.8967898	1.0198525	1.0083522	0.9726473	1.0639888	1.0738014	1.033394	1.0727965	1.1341121	0.9873142	1.340558	1.3387599
Annexin V	1.1425751	1.282336	1.2745267	1.1334479	1.110877	1.3277035	1.0342758	1.2309638	1.0727965	1.1341121	0.9873142	1.340558	1.3387599
Phase-1 RCT-33	1.0288372	1.3524175	1.8865976	0.9478841	0.7853419	0.7704074	0.8615724	0.8516751	0.855602	0.7884407	0.6406933	0.695174	0.695174
Phase-1 RCT-61	0.8507804	0.8988921	0.786226	0.8167083	0.8533533	1.1351812	1.1448225	1.0415943	1.2517315	1.2894409	1.0651435	1.2076083	1.1866517
Retinol dehydrogenase type III	0.901364	0.9405818	0.9431258	1.0871935	1.1434933	0.55818	0.8032016	0.8678815	0.9472388	0.7840453	0.9126665	0.3566563	0.403525
ATPase inhibitor (rat mitochondrial IF1 protein)	1.2079859	1.1646807	1.1230413	1.2803812	1.0487993	0.2823229	0.4733359	0.4346801	0.7377986	0.7999811	0.5858128	0.1523169	0.2062801
Thymidylate synthase	1.1404909	0.9548865	1.0615398	0.7543007	1.1198438	1.1558344	1.1762028	1.1965787	1.3186125	1.0728673	1.0500435	1.349954	1.3929555
Interleukin-18	1.1753737	1.0624914	1.308324	0.5573158	1.0013977	1.3094553	1.0498326	1.052132	1.1009932	1.181108	1.0451354	1.6058178	1.8184607
Lectin:cholesterol acyltransferase	1.321659	1.5550113	1.8204037	1.4034852	1.6003884	0.6808284	0.8618742	0.9004336	0.8325858	0.9654122	0.8707223	0.6733493	0.6884756
Contraptin-like protease inhibitor (CPI-21)	0.5127317	0.5320403	0.4903969	0.8439108	0.5303774	0.6073504	0.8791866	0.7750425	0.7687844	0.7867705	0.9287353	0.3505022	0.3073565
Proliferating cell nuclear antigen gene	1.0724043	0.9362658	1.2198149	0.8378839	0.8969523	1.3174077	1.150227	1.0542336	1.0520881	1.3007784	1.0824805	1.7270813	1.9438897
Phase-1 RCT-230	1.0748166	0.8923891	0.9961011	1.2207761	1.0037527	1.3190461	1.1389757	1.192878	0.9772837	0.9014226	1.042058	1.4280938	1.5943778
Cytochrome P450 2D18	0.4860095	0.8907357	1.1645223	0.9351507	1.279084	0.7288252	1.22754	1.046057	0.7857627	0.637921	0.9022843	0.4843481	0.3475778
Phase-1 RCT-48	0.5973459	0.8367961	0.6806438	0.8390214	0.8938281	0.6178008	0.6613509	0.6581985	0.9522173	0.8840928	0.8335438	0.8342989	0.830525
Phase-1 RCT-292	0.9498037	1.0773171	1.1744982	1.1335309	1.1038461	0.821209	0.9408312	0.9529738	0.8467591	0.8292478	0.8989288	0.8093678	0.8462255
Arginosuccinate synthetase 1	0.5978172	0.7194794	0.5970714	0.6855367	0.4319824	0.4093651	0.6670509	0.5820089	0.7665763	0.5360118	0.9265258	0.3698375	0.3233079
C-reactive protein	1.9115757	1.5307462	1.3286289	2.2084036	2.2745624	0.9814883	1.1557539	1.2500973	0.8058755	0.9344842	0.8592742	0.3003292	0.4002322
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint														
(1)														
Compound-Dose														
Liver Toxicity Necrosis Classification														
Animal Number	yes	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name	yes	no	no	no	no	no	no	no	no	no	no	no	no	no
Osteocalcin	5.130466	1.0019327	0.9442192	1.8934748	1.0518706	0.9638628	0.9088977	0.9702393	1.1139009	0.9786929	1.0788992	1.1571282	1.2288238	
Stathmin	1.5889753	0.9430116	0.9773857	1.1721688	0.8051049	1.1484889	1.0022078	0.8843797	1.1284698	0.9405939	1.2863133	1.1709479	1.058409	
Calpain1 heavy chain	1.7168921	1.3198887	1.2730043	0.9366509	1.1596144	1.1497861	1.0895469	1.1113567	1.2168054	0.9570017	1.1146849	1.1739833	1.1739833	
Phase-1 RCT-179	0.9866501	0.9120484	0.9248939	1.1638247	1.033608	1.0704338	1.2966689	0.9232199	1.013628	1.2385265	0.9573239	0.7987355	0.9357208	
Phase-1 RCT-107	0.7235594	1.0436077	1.250189	1.2525789	1.2013826	0.979107	0.8935429	1.0051112	1.0281882	1.2244824	1.4641722	1.4848769	1.1046603	
Heme oxygenase	2.1028013	1.0900195	0.9201754	1.8280282	0.9902325	1.0394047	1.050774	1.0755113	0.9562548	1.0263407	0.708628	0.6417736	0.8349882	
Collagen type II	1.8792013	1.0109729	0.988785	1.1085094	0.8817974	0.6587873	0.5973096	0.4674191	0.8052859	0.5587537	1.2895647	1.3091512	1.1502279	
Phase-1 RCT-81	0.8007692	0.8153347	0.9836091	1.0153191	1.1661291	1.0661333	1.0843575	1.1779883	1.067345	1.3129702	1.2207272	1.5854284	1.1641561	
Glycine methyltransferase	0.4890456	1.1719779	1.4642136	1.4589471	1.7805102	1.0661333	1.0073808	1.0566652	1.1930461	1.3474911	1.3913218	0.7562484	0.6893778	
Cystatin C	1.142634	1.086228	0.8840182	1.305763	1.0190334	1.0073808	1.0566652	1.1930461	1.3474911	1.3913218	0.7562484	0.6893778	0.8692262	
Melanoma-associated antigen ME491	1.8273605	1.456671	1.2362423	1.3471775	1.1931217	1.4899769	1.2056074	1.2463168	1.1764106	1.2536084	0.9561176	0.8630897	0.8692262	
Phase-1 RCT-146	1.2065194	1.0837922	1.1216372	0.9409012	0.9062533	0.9263135	0.8631803	0.8748213	0.9926668	0.7639485	0.989014	0.932836	0.9908797	
Gamma-actin, cytoplasmic	1.0627815	0.8789395	1.0041891	0.8871958	0.831891	0.8952676	0.8952676	0.8952676	0.8926668	0.7639485	0.989014	0.932836	0.9908797	
Adenine nucleotide translocator 1	1.0846702	0.8737416	0.9582123	0.7813078	0.8605819	1.09639	0.700123	0.8731233	0.7788152	1.0788152	1.0788152	1.2365897	0.8240219	
Thymosin beta-10	1.3400304	0.9348089	0.9633579	1.274748	1.0689707	1.0296808	1.1555454	1.1430914	1.1281111	1.2807393	1.0164143	0.9654378	0.8240219	
Insulin-like growth factor I, exon 6	0.4131315	0.8968087	0.8548319	0.5789639	1.2925777	1.1359165	1.2867465	1.0329089	0.8405347	1.4050872	2.514955	1.6484284	1.9807165	
Phase-1 RCT-78	0.7043539	0.8934571	1.0297524	0.8750135	0.9384227	1.1501502	1.0569673	1.0968021	0.835558	1.0412034	0.9780869	0.9605923	0.9286752	
Alpha-2-microglobulin	0.0397795	0.5849121	0.6618638	0.2335385	1.5461295	0.9915688	0.9010198	0.6838799	1.0169854	0.6193331	0.5163063	0.5934079		
High affinity IgE receptor gamma chain	1.4894341	1.006549	0.9437802	1.0529372	0.8970746	0.9213709	1.0590955	0.9510576	1.0530497	0.9750758	0.7450756	0.5217728	0.4722422	
(FcγRIIgamma)	1.1257768	1.3277925	1.050002	1.2428069	1.0248216	0.8901906	1.1415035	1.3267484	1.1071406	1.3732027	0.9876803	1.0113938	0.9174851	
60S ribosomal protein L6	1.6547767	0.9654609	0.8789625	0.9535888	1.0803333	0.9971219	1.1608648	1.1143292	1.2159578	1.1423498	0.9553028	1.0637972	1.0932478	
IgE binding protein	0.8275476	0.8573623	0.9580632	0.8831542	1.105013	1.0489421	0.8877013	1.0181329	1.0430963	0.9711112	1.2000263	1.2163907	1.1637868	
Phase-1 RCT-149	0.123874	0.8732856	0.9999309	0.681397	0.8999035	0.8483307	0.8750407	0.699242	0.7967385	0.7811109	0.8784671	0.63455	0.7623972	
Cytochrome P450 2C11	1.6471984	0.8512478	0.8524129	1.1010869	0.8877048	0.8585364	0.9524964	0.807777	1.0730325	0.9712331	0.8652091	1.05414	1.0051489	
Uncoupling protein 2	1.1823217	1.0015084	0.8893438	0.8575822	1.2066004	1.1579587	1.247941	0.8380272	0.9877079	0.9775203	1.1739458	1.0208899	1.1252747	
Cofilin	1.0031354	1.0154225	0.9986309	0.7140515	1.0094421	1.1205623	1.2136158	0.8628	1.0473093	0.8818608	1.5197116	1.5592544	1.2309694	
Alpha-tubulin	0.2190726	0.2915084	1.2665225	0.0274851	1.9898174	3.1347382	2.0735362	0.2938865	3.0649602	1.1878843	2.7234874	3.7808871	2.840686	
Stearyl-CoA desaturase, liver	2.140176	1.0133662	1.0501382	0.7915426	0.9365146	0.9755815	0.9051133	1.0430552	1.027386	0.9711848	0.8672658	0.8964018	0.8195046	
Glutathione S-transferase theta-1	0.8907068	0.8793349	0.8504782	1.7342447	1.1588007	1.0579782	0.8907793	1.2488483	1.0537407	1.0628274	1.0478116	1.2912405	1.3168327	
alpha-1,2-fucosyltransferase	1.4304013	1.1034963	1.042673	1.2854482	1.1836574	1.1525484	1.0799376	1.3180547	1.244243	1.3062649	1.0280358	0.8969008	0.917357	
Phase-1 RCT-138	1.5859789	1.1013749	1.0214736	1.0748094	1.115104	1.1720223	1.2773801	1.5553787	1.3160044	1.067403	0.8114961	1.1524732	1.0871247	
Phase-1 RCT-285	0.6984019	0.9783812	1.0270288	0.9285081	1.0273719	0.9986253	0.9598887	0.904379	1.0196917	1.2043638	0.7676972	0.6078314	0.7490448	
Phase-1 RCT-164	1.3612596	1.1521635	1.1422917	1.3800397	0.9396658	0.9299302	0.9858072	1.1472211	1.0512943	0.8817224	0.9222906	0.7474673	1.1688747	
Alpha-2-macroglobulin, sequence 2	1.5416354	0.9222022	1.137499	0.9333647	0.8804063	0.863592	1.0341108	0.9187833	1.0724921	0.6837857	1.0240215	0.879729	0.8731884	
Bilirubin reductase	1.3770657	0.9787075	0.9614344	1.1638872	0.8011881	0.7878938	0.9735252	0.5603762	0.8184028	0.6837857	1.0240215	0.879729	0.8731884	
Phase-1 RCT-121	0.6644468	0.9105309	0.9834482	0.8640322	1.1829777	1.0817814	1.0112854	1.0459186	1.2497054	1.1072388	0.9827925	0.9800271	0.9069612	
Dynamin-1 (D100)	1.4288508	0.9475594	1.0122488	1.4300902	0.8955791	0.9821563	1.0543712	1.0530338	0.874136	0.9855005	0.9738004	1.0632883	1.0632883	
Phase-1 RCT-192	0.4458792	0.7714209	1.3481869	0.1610174	1.6320819	1.6048565	0.9614196	0.9288003	2.054674	0.9368319	1.3824844	1.5452504	1.1413392	
Fatty acid synthase	1.2305915	1.1249081	1.1118251	1.3850499	1.2005728	1.0705174	1.1819198	1.1654947	1.5154033	0.8033768	0.9296892	0.9701589	0.9701589	
Phase-1 RCT-211	1.2107971	0.907597	0.9185357	0.9119539	1.0193293	0.9285519	1.2878051	1.3812014	1.1815242	1.5445998	0.8813505	0.7202398	0.6809841	
Ribosomal protein S9														
NADP-dependent isocitrate dehydrogenase,														
cytosolic	0.9924637	1.0174515	0.958591	0.8399722	1.1062666	1.3685289	1.3761585	1.4043375	1.3164289	1.4644089	0.7288117	0.8928544	0.7873476	
Phase-1 RCT-57	0.7867349	0.9800588	1.0156409	0.9422626	1.1173589	0.8321246	0.8852059	0.9359033	1.0467585	1.5322475	1.8614565	1.741052	1.2018925	
Phase-1 RCT-36	0.873688	0.9389271	1.253699	0.9678064	0.9348829	1.0320553	0.8761777	0.8233472	0.961939	0.7935457	1.2804548	1.146747	1.2018925	
Apolipoprotein AII	0.2509521	0.7524521	0.7182068	0.8223169	1.3268569	0.8107357	0.7196257	1.1870284	0.8079885	1.1394935	1.0765608	1.0048504	0.9653257	
Phase-1 RCT-68	1.2786647	0.9791547	1.0247414	1.1062497	1.0078649	1.0164758	1.0128443	1.0351826	0.907409	0.9161184	1.1309636	1.2373157	1.131714	

Multidrug resistant protein-2	2.177902	1.1354089	1.0074447	1.121206	0.7261847	0.8042728	0.7663062	0.9557599	0.8085944	0.7806571	0.974259	1.5471198	1.3940147
Phase-1 RCT-39	1.2480991	1.0070091	0.9854727	1.1365848	0.8045235	0.9028392	0.9540967	1.072699	0.8207358	0.9360732	0.9259542	1.0140028	1.4228201
NIPK	0.7736474	1.181947	0.9811056	0.7975655	0.9819258	0.9115132	0.9182284	0.7832866	0.8441891	0.9110763	2.1119123	1.7236357	1.9322562
F1-ATPase beta subunit	1.5691476	1.0026221	0.9346185	0.9996909	1.3948963	1.3716176	1.2767359	1.6400479	1.4885587	1.668286	1.6013303	1.2894635	1.1671807
Elongation factor-1 alpha	1.2703658	1.160345	0.9045163	1.4538318	1.3664104	1.197687	1.179399	1.6041715	1.3155167	1.8689568	1.3234924	1.3155167	1.1922518
Phase-1 RCT-24	0.9268478	1.0037528	0.9719353	0.726193	0.7910027	1.141856	0.803392	0.6352841	0.7671423	0.654578	1.1522604	1.3453372	1.1728342
Beta-tubulin, class I	1.2598692	1.103874	0.9472581	0.6566534	1.0864856	1.1932161	1.2344426	1.1732299	1.4154205	1.2193632	0.763424	0.9007596	0.8338937
14-3-3 zeta	1.2699434	0.9437727	1.0411008	0.7747644	1.115871	1.209033	1.3201176	1.1200279	1.3170392	1.0097362	0.7336647	1.2236114	1.0825241
Alpha-prothymosin	1.1732011	0.9631168	0.9509075	0.8346818	1.1375437	1.1632429	1.3590928	1.0905126	1.0311427	1.2047989	0.8690111	1.6613665	1.531237
Phase-1 RCT-58	1.6420472	1.3391933	0.89872	1.1707473	1.1122411	1.5042058	1.0850564	2.540321	1.2147638	2.0926388	0.7863377	0.6086038	0.6184896
Phase-1 RCT-290	0.7247496	0.950097	1.5933956	0.5860656	1.4030374	1.3823284	1.156624	1.2342535	1.1901733	1.5386677	1.288759	1.8892831	1.2662978
Transitional endoplasmic reticulum ATPase	0.920731	0.9863732	1.0306814	0.9265487	0.8634756	0.6542198	0.6117549	0.4546625	0.5905041	0.555136	1.0033434	0.9054377	0.8902512
Beta-actin	1.2667081	0.8540543	0.8016556	0.5115773	1.2885935	1.3662705	1.2320995	1.7272073	1.5402557	1.6393822	1.5020322	2.5021272	1.7902281
Thioredoxin-1 (Trx1)	0.9854893	0.9148518	0.8513955	0.8202065	1.0833783	0.9342011	1.0918899	1.2525408	1.0799121	1.3415508	0.7202812	0.7736889	0.8102788
Phase-1 RCT-174	0.8542789	0.9654592	1.0192283	0.8345472	1.109999	0.9232695	0.9923904	0.9148029	1.028284	1.1209289	0.8900743	0.9999327	0.8731785
Beta-actin, sequence 2	1.0991755	0.9682863	0.901458	0.6618419	1.3721788	1.3387305	1.246772	1.7834695	1.4816014	1.1303623	1.0215905	1.116062	
Phase-1 RCT-109	1.1656619	0.9635379	1.0213104	1.2865695	0.9872579	0.9197866	0.6319838	0.4540822	0.5391783	0.5161623	1.097172	1.1376302	0.8957448
Phase-1 RCT-154	0.9478831	1.0839413	1.0796214	0.9112034	0.9526295	0.9108983	1.072916	0.746921	0.9863434	0.864158	0.782558	0.9314898	0.9315038
Hypoxanthine-guanine phosphoribosyltransferase	1.1542877	0.9481685	1.2644359	0.7598425	1.2068825	1.3194538	1.0890366	0.8677269	1.2133619	1.0984155	1.3381667	1.469046	1.6557747
Phase-1 RCT-213	0.9734225	1.0388355	1.0686605	0.9907107	0.8544527	0.9184536	1.0137987	0.8585514	1.0158228	0.9827769	1.188935	1.1878437	1.1506449
Phase-1 RCT-280	0.897414	1.0364053	1.1077759	0.9144571	0.889413	0.9390822	0.9712557	0.8709334	0.7007741	0.598943	0.8243232	0.8017747	1.1495974
Phase-1 RCT-12	1.2482727	1.1349338	1.0174124	0.9226182	0.9372356	1.0066543	0.9540871	0.7570608	0.9601271	0.6990109	0.8409038	1.089559	0.9356279
Phase-1 RCT-293	1.0360265	0.9689994	0.9197958	0.8695533	0.9880291	0.9197833	1.0190043	0.9994581	1.1885646	1.2516011	0.9599637	0.9620108	0.9171872
Ribosomal protein S8	1.1281142	1.117432	0.9726114	1.3226397	1.0485085	0.9735494	1.0957122	1.3986988	1.1528349	1.6132594	0.7485257	0.8058668	0.7506855
Pyruvate kinase, muscle	1.3151939	0.9010863	0.9711587	1.0526575	0.8318846	0.8387056	1.0147178	1.1418768	0.9451076	1.0815854	0.8958266	0.9247074	0.8766653
Nucleoside diphosphate kinase beta isoform	1.9878081	1.1362263	1.0725971	0.8808765	1.0049156	0.9885634	1.0429988	1.2143561	1.2150639	1.1958193	0.704084	0.9130091	0.8702327
p53CDC	1.4855244	0.966911	1.0464994	0.9041542	0.8815164	0.8545544	0.8903952	0.5989552	0.7256776	0.5744194	1.3310978	1.0144697	0.9109889
Phase-1 RCT-156	1.0311408	0.9207258	0.8891323	0.799939	1.0628765	1.166371	0.807066	1.0753598	1.1165774	1.1086572	1.2155024	0.9187415	
Ribosomal protein L13A	1.2517387	1.0101775	0.9963903	1.2508928	1.0693434	0.9183044	0.9043075	1.1720923	1.1009039	1.2660726	1.0661944	1.3550948	1.2000957
Phase-1 RCT-258	0.9385621	1.0133295	1.040072	1.001779	0.9734658	1.0004736	1.0861185	0.8682188	0.8966479	1	1.2284157	0.8761515	1.0372341
Insulin-like growth factor I	0.4700514	0.9188125	0.7727082	0.5511037	1.2376192	1.1373	1.4084682	1.2903261	0.8916084	1.8552103	1.0005404	0.8356105	0.9847208
Cytochrome P450 3A1	0.6455215	0.9859016	0.3922328	0.5995183	0.8240973	0.6860103	0.6597287	1.3502904	0.9395891	1.3154951	1.0052997	0.4211558	0.4554278
(Ribosomal protein L6)	1.1473522	1.0273097	1.0375687	1.193496	1.1288651	1.0076848	1.1071721	1.4044673	1.1266532	1.4860098	1.2875988	1.4328765	1.2176985
Organic cation transporter 3	1.191203	0.8416404	0.9079131	1.2259893	0.987129	0.9759409	0.9431588	0.9528433	0.9346701	0.938557	0.9036324	0.9446088	0.9156661
Calpain 2	1.1870428	0.9604392	0.7851787	1.0625377	1.041305	1.1056531	1.0439984	1.1930413	1.1721839	1.1702287	1.3114647	1.1428039	
Phase-1 RCT-102	0.4632807	1.0788617	0.8093761	0.3142525	1.0228456	1.3454559	2.6082196	1.0754031	0.6315831	1.0815759	1.0542135	1.1059602	1.1167592
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.5969452	0.9039381	0.962787	0.5884379	1.1187575	1.0549179	1.054949	1.2130934	0.9884806	0.9911417	0.8112741	0.7893459	0.6133457
Phase-1 RCT-227	0.647834	0.9224911	0.9632665	1.0354233	1.203285	1.0980854	0.9306343	1.3006263	0.8652505	1.4617512	0.9152069	0.9844728	0.877337
N-hydroxy-2-acetylaminofluorene sulfoxidase (ST1C1)	0.3748783	0.8553504	0.7978133	0.5622116	1.041908	0.9947101	1.1540767	1.1667142	0.9110986	1.324219	0.5179471	0.4375308	0.4997667
Cathepsin S	1.4410139	1.1142763	0.8638919	1.383046	1.1981723	0.9238499	1.0216403	1.1430979	0.9843253	0.8768072	1.04435	0.7480076	0.7716864
Apolipoprotein CIII	0.6463311	0.7841811	1.0860707	0.785238	1.1693285	1.1413051	0.9944503	0.8730357	1.0783564	1.1581671	0.9656715	0.7782855	0.6345982
Cytochrome P450 2A3	0.5056964	0.9763042	1.110723	0.971415	1.2974554	1.9072108	1.2701567	1.1111544	0.8799105	0.7967778	1.2330889	0.7453512	0.9128474
Cytochrome P450 2C23	0.3641816	0.9741973	0.8632489	1.3367098	0.9427868	0.9247841	1.0541435	1.1242874	0.7673322	1.4652312	0.92465	0.7854656	0.8913941
Apolipoprotein C1	0.3911058	0.9302355	1.002663	0.9290003	1.1368703	1.0599985	0.9271419	1.0947304	0.8912359	1.403748	0.6763668	0.4219794	0.3613508
Betaine homocysteine methyltransferase (BHMT)	0.623182	0.9653295	1.8382691	0.552529	1.2515023	1.9348925	1.3336868	1.5637244	1.4924613	2.3219001	1.3024938	1.8318632	1.2408244
Paraoxonase 1	0.7337675	1.0564585	0.9426221	0.864669	1.172843	1.1120679	1.2485526	1.6595635	1.0943853	1.6095389	0.7281988	0.4706661	0.5955157
Phase-1 RCT-207	0.9898889	1.0023454	1.15841	1.0431026	0.8285792	0.9247772	1.0709904	0.8565212	1.0031072	0.857378	1.086831	1.1804194	1.1089808
Cathepsin B	1.8620054	1.0392579	1.0193175	1.2912853	1.3861555	1.172549	1.7477636	1.4637544	1.6197636	1.4063147	1.1725089	1.2341777	
Phase-1 RCT-144	1.1020281	1.2560329	1.151601	0.8738882	0.7696096	0.9312505	1.0473132	0.8092386	0.8913565	0.7648666	0.9272996	0.9327552	0.8917462

Alpha-1 microglobulin/bikunin precursor (Ambp)	0.642389	1.0245979	1.0553844	1.0075896	1.309138	1.2286662	1.1758246	1.2644727	1.1695608	1.595321	1.0083066	1.0017376	0.8399581
Cyclin D1	1.8199335	0.9044324	0.8486714	0.7077843	0.7941945	0.9096832	1.323637	0.7304733	0.7917159	0.6915445	1.182251	1.0578438	0.7820823
Presenilin-1	0.5280771	1.0400492	0.9899786	0.707888	1.1011269	0.7595053	1.1401119	1.3006299	0.761919	1.0357963	1.3945503	0.8586056	1.060371
Protein tyrosine phosphatase, receptor type, D	0.5207069	0.7764233	0.8604471	0.7184142	1.3878682	1.3847412	1.4572816	1.55193	1.2761177	2.0121046	0.8024587	0.8450846	0.7307585
Multidrug resistant protein-1	2.2986101	0.0857857	0.9745482	1.1220059	0.82151	0.9007806	0.8759366	0.9379168	0.8802062	0.7483398	1.5089449	2.2585268	1.3838774
Cathepsin L, sequence 2	1.0532095	0.9516541	0.895649	1.5676248	0.832579	0.7402509	1.0706638	1.1735661	0.9091848	1.0334852	0.8987513	0.8774558	0.8615292
JNK1 stress activated protein kinase	0.9300989	0.9362173	1.1463608	1.356761	1.273815	1.0709795	0.8851736	1.358872	0.9682498	1.0578736	1.0467904	0.7479303	0.5676276
Phase-1 RCT-43	0.9903514	0.9980018	0.9956669	0.9475448	0.8792302	0.808315	0.820267	0.593066	0.8264862	0.7044742	0.7920379	0.8976689	0.8637852
Tissue plasminogen activator	1.0144669	1.2717144	0.9847027	0.5445492	0.9777468	0.969298	0.8875138	0.8666678	0.8712236	0.6516575	1.0894964	1.0941912	1.1032641
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.1489016	1.2830906	0.9506218	1.0315295	1.0230616	1.0136626	1.2576282	1.018601	1.0319165	1.3948337	0.6195018	0.8639344	0.8448802
Phase-1 RCT-173	1.8110774	1.0483091	1.0929438	1.1953342	0.8763724	0.885724	0.9459615	0.7984151	1.0756235	0.9421376	0.957581	1.0429658	0.9918989
Omitidine decarboxylase	1.2352933	1.2413557	1.2183381	0.7594518	0.8584034	1.1467687	1.2743678	1.041059	1.0730969	0.9584332	1.0172977	2.417808	2.212674
Zinc finger protein	1.0319549	1.0139999	1.0155241	1.2443813	0.7828931	0.8186238	0.9447805	0.6529034	0.8046478	0.8074203	1.1885853	1.0929422	1.1253347
CDK108	1.0901169	1.003766	0.750834	0.7192235	1.0457361	1.0806737	0.8685312	0.8146887	0.7489957	0.9377164	0.9687485	1.1028268	1.0682081
Phase-1 RCT-117	0.8885128	0.9365717	0.9073589	0.8242948	1.3425314	1.1512595	1.2047337	0.6416434	1.2677867	1.4875454	1.2420787	1.0555042	1.132878
[Phase-1 RCT 98]	0.9531044	0.7963257	0.9300509	0.8135322	1.0398902	1.013246	0.9646019	0.8313988	0.852252	0.8408684	1.1814929	1.3692408	1.2780043
Aquaporin-3 (AQP-3)	0.8625231	0.9395661	1.0041261	0.982564	1.0063629	0.8272347	0.7520178	0.8131149	0.6961234	0.9955567	1.0711558	1.025233	0.8609142
Cholesterol esterase	0.7746772	0.6884319	0.6288328	0.694101	0.8642439	0.9220665	0.7743779	0.7250696	0.7321469	1.2684058	1.2160805	1.1812155	0.8843263
Ribosomal protein S17	1.2129514	1.1587939	1.0085971	1.3263733	0.9099618	0.8692929	1.0401394	1.1812526	0.9803988	1.3308182	0.8192028	1.0181838	0.8843263
Poly(ADP-ribose) polymerase	1.255621	1.051138	1.218175	0.82019	0.9141933	0.8637289	0.8101997	0.8221334	0.9020714	0.7391129	1.2624797	1.3923514	1.4138901
Annexin V	1.2895945	1.0241947	1.0575234	0.9063978	0.8614278	1.0373245	1.2310396	1.0583758	1.0684667	1.0654664	1.0432085	0.9384557	0.8200424
Phase-1 RCT-33	0.6527383	1.1570171	1.3540152	0.8613797	1.2850245	1.4761702	1.0214087	1.2594941	1.3221693	1.5985574	1.1969851	1.1416105	1.2288055
Phase-1 RCT-81	1.192842	1.2510753	1.0264007	1.1690414	0.8928542	0.8706653	0.8548618	0.63711	0.8325849	0.7885278	1.0348133	0.8335125	0.8728847
Retinol dehydrogenase type III	0.5850177	0.8846248	0.9694797	0.818899	1.4106495	1.4484183	1.2011015	1.1703953	1.2584928	1.8120762	0.7551162	0.8284593	0.7576454
ATPase inhibitor (rat mitochondrial IF1 protein)	0.3183253	0.8980458	0.7202778	0.5352186	1.2244457	1.0648046	1.2538281	1.3438245	1.0702077	1.4736633	0.5871739	0.5110844	0.6658989
Thymidylate synthase	1.1879234	1.0137469	1.0321711	1.3772736	0.914099	0.9245093	0.9076279	0.7169592	0.8252109	0.672826	1.2136282	0.9007418	0.8284617
Interleukin-18	1.2305624	0.8496138	0.9470511	1.031744	0.8088739	0.8987408	0.874535	0.5303682	0.8437922	0.8907131	0.8341022	0.8284617	0.8284617
Lecithin:cholesterol acyltransferase	0.7377166	1.0988829	0.9401532	1.0302928	1.2545502	1.1930611	1.1968971	1.4501469	1.2189181	1.5043184	1.0051241	1.1125736	1.1369776
Contraptin-like protease inhibitor (CPI-21)	0.4180768	0.9095819	0.784817	0.2977954	1.1512234	0.955675	0.8719437	0.6822208	0.592888	0.9667429	0.9587837	1.0238998	1.0628938
Proliferating cell nuclear antigen gene	1.2480869	0.8692914	0.9097262	0.8176834	0.7387173	0.7476562	0.7802304	0.6197826	0.708785	0.8637777	1.0025455	0.858393	0.8505286
Phase-1 RCT-230	1.2919513	1.0521189	1.0424255	1.1047841	0.8037633	0.8097668	0.9028852	0.915358	0.8057272	0.8712488	0.9142419	0.8307681	1.550924
Cytochrome P450 2D18	0.6960898	1.1316547	1.0301894	1.0929432	1.0840254	1.022659	0.9365338	1.3283215	1.1101375	1.4953825	1.5575928	1.8010932	1.620505
Phase-1 RCT-48	0.7699011	0.9601976	1.0382524	0.8082655	1.1676474	1.3600425	1.2040712	1.0715408	0.8047096	1.2716805	1.3299919	1.3495058	1.208087
Phase-1 RCT-292	0.8163309	0.9301136	0.9325755	1.0819685	1.1495725	1.0879095	0.9697109	1.043529	1.098456	1.1689655	1.1050242	1.096326	1.0773232
Argininosuccinate synthetase 1	0.4037345	0.8848568	1.9696424	1.2350507	1.5225463	1.6786261	1.0715278	1.0137787	1.1707187	1.47527	1.3367257	1.3967797	1.0883938
C-reactive protein	0.5736723	1.0608636	0.8908129	0.7420979	1.4693254	1.4315186	1.6033335	1.628257	1.359493	2.0876046	0.5024643	0.567119	0.802836
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint															
(1)	CHLOR 30	CHLOR 30	CHLOR 30	CIS 2.5	CIS 2.5	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10
Compound-Dose	CHLOR 30	CHLOR 30	CHLOR 30	CIS 2.5	CIS 2.5	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10	CIS 10
Animal Number	57	58	59	no	no	no	no	no	no	no	no	no	no	no	no
Liver Toxicity Necrosis Classification	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name	0.9869648	0.874861	1.273223	1.0045757	1.0052737	1.1182581	1.1104393	0.9053036	0.9081503	1.0902715	0.8116155	0.898287			
Osteocalcin	1.07137	0.997121	1.2240943	0.8710316	0.9282308	0.9803675	0.9191238	0.7821424	1.2866173	1.1930366	1.2599263	1.1661102	1.1712871		
Statmin	1.2326566	1.2145594	1.1363053	1.044323	1.1516588	1.0419444	0.8249402	0.8625272	1.1848824	1.1991482	1.2513227	1.1299608	1.2350648		
Calpain I heavy chain	0.8116236	0.8431138	1.0558914	1.0046568	1.008543	0.9234892	0.8943745	0.9263911	0.8827379	0.8725108	0.9515146	0.8913868	0.8909885		
Phase-1 RCT-179	1.3785502	1.3559662	0.9809347	1.3744085	0.9838737	0.8566032	1.2055279	1.1600067	0.9878053	0.9829438	1.0979954	0.8579826	1.1535496		
Phase-1 RCT-107	0.956463	0.6850266	0.6451342	1.0972874	0.7247887	0.7236901	0.6515169	0.811832	1.4941287	1.1594455	1.2341359	1.2740924	1.0051638		
Heme oxygenase	1.1150538	1.2754283	0.8932005	0.9162589	1.0397073	0.896785	0.8749798	0.9227452	1.5041149	1.1606214	1.3658911	1.4748592	1.279971		
Collagen type II	0.8221971	0.8437587	0.9230617	1.0348674	0.9956718	0.9956718	0.9956718	0.9956718	0.9956718	0.9956718	0.9956718	0.9956718	0.9956718		
Phase-1 RCT-81	1.353086	1.4021288	1.040358	0.997126	1.0690762	1.3857857	1.911817	2.5303175	0.8633941	0.9879577	0.8398508	0.7687504	0.8524849		
Glycine methyltransferase	0.8782346	0.8058421	0.7665951	0.8566671	0.7771387	0.8301089	0.8072313	0.7966737	0.6775722	0.8173381	0.8727651	0.7090628	0.8142077		
Cystatin C	1.0674677	1.0251284	1.0768979	1.406844	0.8753864	1.1619064	0.9067785	1.0484036	0.9489572	0.8786393	1.0558934	0.7993794	0.9692329		
Melanoma-associated antigen ME491	1.13651	1.0848345	0.958114	1.077121	1.053466	1.027086	1.027553	1.1039728	1.2046663	1.0714042	1.2168474	1.1001357	1.0400429		
Phase-1 RCT-146	1.217573	1.2618349	1.1896404	1.0468225	0.8113672	1.0323488	0.8723598	0.9772505	0.7362058	0.8494061	0.7884935	1.005585	0.8131885		
Gamma-actin, cytoplasmic	0.7902842	0.7863472	0.9314933	0.9326614	0.938254	0.9110413	0.9315002	0.8666508	0.7078828	0.8168544	0.8097797	1.096052	1.1831346		
Adenine nucleotide translocator 1	1.3058318	1.2772346	0.980302	1.1307868	1.0323272	1.0620955	1.0117003	1.0482618	1.2527415	1.0449291	1.247654	1.1096052	0.919231		
Thymosin beta-10	1.3635079	1.1093729	1.3781426	0.7890339	0.7734144	0.7844001	0.6008678	0.8080832	0.8699487	1.0503782	0.800946	1.1516336	0.919231		
Insulin-like growth factor I, exon 6	0.9764968	1.0568516	1.1187435	0.9233494	0.9233494	0.9314135	0.7371724	0.7376339	0.7675977	1.0743206	0.8883135	0.8343665	0.8398009		
Phase-1 RCT-78	0.4863668	0.5405361	0.9008522	0.7761901	0.9322288	0.2029774	0.8873122	0.6022587	1.0304253	1.0774782	0.9473388	1.1446697			
Alpha-2-microglobulin															
High affinity IgE receptor gamma chain (FcER1gamma)	0.6836925	0.672824	0.6550245	0.8415254	0.8957897	0.8361509	0.7321135	0.8595916	0.8462859	0.8629695	1.0338173	0.8750328	0.9355089		
60S ribosomal protein L6	1.000155	0.9609184	0.9958736	0.9938114	1.0259849	1.044078	0.9691675	0.9712285	0.8915091	0.952731	0.9695599	0.9214662	0.8867597		
IgE binding protein	1.0280224	1.0396887	1.1877469	0.912824	0.9788468	0.9274033	0.8506749	1.0313941	1.0740477	1.168987	1.1804484	1.014793	1.0575904		
Phase-1 RCT-149	1.0530714	1.058201	1.2165977	1.0448428	1.0612918	1.0176228	2.0147269	1.2742426	1.2481868	1.23539	1.345481	1.3323009			
Cytochrome P450 2C11	1.2045391	1.2962492	1.0154575	1.4810358	1.0964901	1.3281355	0.8200362	0.7488598	1.0649015	1.0341321	1.3738436	1.3041102	1.2884976		
Uncoupling protein 2	1.4297586	1.3435005	1.059544	1.0399705	0.9775778	0.9259909	0.8963276	0.8876281	1.4356825	1.058432	1.277636	1.2234535	1.1503826		
Cofilin	0.8372088	0.9027177	1.2045374	1.0472826	1.1864699	1.0473363	0.9916496	0.9999999	0.6650038	0.8277907	0.9578929	0.8686636	0.94597		
Alpha-tubulin	1.3144951	1.1400461	1.0270818	1.0823167	1.0162864	0.8925532	0.8456678	0.7091392	1.1700181	1.157101	1.1361918	1.2718383	1.1317111		
Stearyl-CoA desaturase, liver	2.6756694	4.12825	3.2845416	0.5959176	1.927161	0.5011988	1.480728	0.0450286	1.7237905	2.6701481	1.057376	0.9531848	1.2207347		
Glutathione S-transferase theta-1	0.8333892	0.8275917	0.9421158	1.2502565	1.6064329	0.9507136	0.6872602	0.7580161	1.0542271	1.1357192	1.0091136	1.137063	0.9253846		
alpha-1,2-fucosyltransferase	1.9527545	1.7721143	1.3910074	0.7753043	0.7794208	0.8237816	0.7350845	0.8614928	1.8028955	1.6189716	1.5326133	1.5009662	1.4460781		
Phase-1 RCT-138	1.0651504	1.0469321	1.0549402	0.9604106	0.9814834	0.9223368	0.9474628	1.0708345	0.8801588	0.9536248	0.9959633	0.8610631	0.9192557		
Phase-1 RCT-295	1.2721123	1.365131	1.2487458	0.9025591	0.9375227	0.9516865	0.874212	0.8707937	1.3136225	1.0787352	1.0468419	0.9889374	0.9973521		
Phase-1 RCT-164	0.8588073	0.8356723	0.8086121	1.766024	1.0593404	1.0048931	1.5542841	0.8145989	1.1929319	1.0550326	1.0061692	1.3746598			
Alpha-2-macroglobulin, sequence 2	1.2118565	1.1515374	1.2663665	1.0743922	1.1319952	1.1076765	1.588947	1.0858897	0.6882603	0.8175379	0.8718258	0.8302819	0.9381426		
Biliverdin reductase	1.1320002	1.9617624	1.009767	0.9758207	1.0025079	1.149612	0.859721	0.9698	1.0727723	1.0841044	1.548834	1.595095	1.2131915		
Phase-1 RCT-121	0.7985507	0.7993821	0.8582884	0.9695765	0.976125	0.9425035	1.0946791	0.8280185	1.3056028	0.9329183	1.0641267	1.064165	1.0115452		
Dynamin-1 (D100)	1.0890479	1.273531	1.0949918	0.9625475	0.9999253	0.9205288	1.0457985	1.0395935	0.8043146	0.9282762	0.9725013	0.8988914	0.9890961		
Phase-1 RCT-192	1.0352718	0.9121471	1.0899324	0.9648949	1.0301207	0.8978589	0.8341894	0.9667005	0.9857568	0.8478765	0.9505863	0.8298891	0.8880065		
Fatty acid synthase	0.9709938	1.4400104	1.0480482	0.5576518	1.6281012	0.7240897	0.4473033	0.3963718	1.4151032	1.7867988	0.6657438	0.6746898	0.8745826		
Phase-1 RCT-211	1.3686262	1.3212457	0.9839697	0.8548513	0.8457502	0.838795	1.0528066	1.025147	1.3528906	1.46164	1.2143186	1.186814	1.2653166		
Ribosomal protein S9	0.8009931	0.799509	0.845456	0.9807387	1.1086347	1.043815	0.9858394	0.9467907	0.83428	0.8355011	0.954371	1.0404313	1.051549		
NADP-dependent isocitrate dehydrogenase, cytosolic	0.8051805	0.8420598	0.9175521	0.9788343	1.0502692	0.8050497	0.9751434	0.9682603	0.8844669	0.9053764	0.8976849	0.8206554			
Phase-1 RCT-57	1.6115066	1.4140458	1.5833655	0.9796355	1.1733254	1.2178901	1.3357265	0.8971916	1.1468993	0.9682211	1.9070805	0.9379808	0.9808325		
Phase-1 RCT-36	1.373587	1.5653988	1.3046234	1.026814	0.8612306	0.9126741	0.9598457	1.030901	1.2475485	1.1799008	1.097485	0.9714283	1.020162		
Apolipoprotein AII	2.0034823	2.102714	1.5083909	0.6903546	0.4132561	0.8210438	0.4703139	0.5435066	1.5678413	1.987918	1.5939444	1.9862889	1.0948089		
Phase-1 RCT-68	1.1271183	1.2439942	1.115934	1.0702865	0.9730849	0.9851946	1.1530347	0.9796814	1.0529821	1.0203646	1.0065945	1.0266638			

Multidrug resistant protein-2	0.9547172	1.1311151	0.8280652	1.4526156	1.2765114	1.1861275	4.9602737	7.082227	1.1528152	0.9448585	0.9741976	1.2755394	1.1055968
Phase-1 RCT-39	1.3719547	1.2500061	0.9851612	1.01714	0.928345	0.8545149	1.0281411	1.0245348	1.2952933	1.0360887	1.0360887	1.0200223	0.9283769
NIPK	1.3373113	1.113767	1.4045756	0.9616525	0.9327519	0.9466475	1.1048502	1.0552174	1.0561974	1.0662246	0.9562246	1.1841632	1.1066053
F1-ATPase beta subunit	0.7567053	0.8581148	0.954472	0.9074919	0.8797525	0.9287484	0.936627	0.79371	0.5824824	0.8080747	0.8267855	0.8315023	0.9552598
Elongation factor-1 alpha	1.040813	1.2150749	1.4475971	1.1277368	1.1032752	1.0376132	0.8566524	1.1760475	0.6484225	0.6845448	0.8015745	0.77181	0.8027691
Phase-1 RCT-24	1.3492743	1.2743391	1.0439759	1.0577207	1.128348	0.8695729	0.7073699	1.1363827	1.0947534	1.1282943	1.4797441	1.4797441	1.2428472
Beta-tubulin, class I	1.0662631	0.8818872	0.8080024	1.2305417	1.4083989	0.9479913	0.7040035	0.6503831	0.9871375	1.1816227	0.9654858	1.4334988	1.2262316
14-3-3 zeta	1.2542893	1.1564059	0.8651098	1.0202873	1.0055805	0.9615413	0.9331554	0.9006348	1.2662808	1.2563125	1.1771941	1.2366373	1.2266864
Alpha-prothymosin	1.087011	1.2604928	1.6659577	0.8537823	1.0379025	1.0150802	0.9597414	0.7367132	0.6973529	0.80111	1.000351	0.8341448	0.9432956
Phase-1 RCT-58	0.6121987	0.5942719	0.7639408	0.9303575	1.3544974	0.9302432	0.9088411	1.3218652	0.7319452	0.8498094	0.9128416	0.9128416	0.981568
Phase-1 RCT-290	1.0918809	2.0421503	1.0452802	1.3182094	1.1283954	1.1436283	1.5195469	1.2014552	1.5136594	0.9350773	1.2102562	1.2102562	1.556287
Transitional endoplasmic reticulum ATPase	0.7239874	0.7764758	0.7909877	1.1043353	1.134709	1.0096718	0.9450783	0.942205	0.9040257	0.7989399	0.8562356	0.980682	0.9556862
Beta-actin	1.3869315	1.5121489	1.0937084	0.8520428	0.7971798	0.9004195	0.6332651	0.8088791	0.8696831	0.8721395	0.9205057	1.0866628	1.0317171
Thioredoxin-1 (Trx1)	0.9675171	0.9506312	0.8500886	0.8893212	0.9577922	1.0050716	0.7116818	0.9178764	1.0573362	1.1275827	1.116077	0.98548	0.9763659
Phase-1 RCT-174	1.0342809	1.2204371	1.2404741	1.0898472	1.0841581	1.0337051	0.8470991	1.0119662	1.0676042	0.8893547	0.9063985	0.8918485	1.0085986
Beta-actin, sequence 2	0.8237315	0.9290008	1.1963411	0.5988557	0.5109926	0.621711	0.4579818	0.4662434	1.0483075	1.0808219	1.1884866	1.0989806	1.0989806
Phase-1 RCT-109	1.1748916	1.3785454	1.0950263	0.8250554	0.8415988	0.7643202	0.7603682	0.8002166	1.2139648	1.2598127	1.2234077	1.1954125	1.1954125
Phase-1 RCT-154	0.9614874	1.0030313	1.1311677	0.988833	1.1784314	1.4258462	1.6071781	0.8965516	1.7016853	0.808023	1.0320556	1.0729707	1.0544393
Hypoxanthine-guanine phosphoribosyltransferase	1.0716854	1.1988466	1.0600398	0.9808455	1.1388215	1.0063814	1.0344555	0.9169424	1.1343545	1.1225835	1.0134984	1.1198276	1.0930587
Phase-1 RCT-213	1.165072	1.1004846	0.9290867	1.0054494	1.0625972	1.0882348	0.994459	0.9363415	1.2205992	0.9979483	0.9530891	1.0905441	0.8883806
Phase-1 RCT-260	1.1014438	0.8688564	0.8239837	1.3128158	0.9607818	1.0382488	1.1121787	0.9439116	1.4119807	0.9232401	1.1074986	1.0297005	1.0617855
Phase-1 RCT-12	1.3177853	1.215746	1.0763367	1.026814	1.0131689	0.8390024	0.9676524	1.0265204	1.0798181	1.1643517	1.0332371	1.2407523	1.1556875
Phase-1 RCT-293	2.0717518	1.5075413	1.4115978	0.8974685	1.0078594	0.9998878	0.8333895	0.8875288	1.0815189	1.0137541	1.1558373	1.0307124	0.988665
Ribosomal protein S8	0.9298846	0.9891706	1.0299387	1.0726333	0.9038957	0.9130253	1.0653687	0.7431343	0.8651135	0.9694044	0.8443019	0.8887519	0.8887519
Pyruvate kinase, muscle	1.0712438	0.9880888	0.9234497	1.2100815	0.969047	0.9911111	1.2758343	1.0484035	1.2932757	1.2452881	1.2189684	1.1862054	1.0725667
Nucleoside diphosphate kinase beta isoform	1.088285	0.9283232	0.7980885	1.0548446	1.1322806	1.0042723	0.9791521	0.9163886	0.884272	0.9776326	1.0666206	0.9377444	0.9876292
p55CDC	0.8723409	0.8865102	1.0827497	1.0640508	0.8578295	1.1023355	0.9122311	0.9337932	0.8865998	1.051605	1.1883073	1.1957258	1.1232885
Phase-1 RCT-156	0.8175409	0.8608027	0.9578367	0.8612808	0.9814829	0.8027278	0.8497742	0.8906712	0.7806988	0.968241	0.9010282	0.8668768	0.7981598
Ribosomal protein L13A	1.6335803	1.3975961	1.286034	0.8126704	0.8442828	0.7867758	0.7102276	0.7503555	1.3866826	1.2264642	1.254413	1.0564446	0.9905501
Phase-1 RCT-258	0.9064292	0.7949979	0.966536	0.9788032	0.9952081	0.9369644	0.9314758	0.7158876	1.0860363	0.9140077	0.9974074	1.0564446	0.9905501
Insulin-like growth factor I	0.5636259	0.6651205	0.8841587	0.8446736	0.7866087	0.7366254	0.5471235	0.7578089	0.709424	0.9254466	0.8495425	0.9629328	0.8727532
Cytochrome P450 3A1	0.8476187	0.6565121	0.6604651	1.2221348	0.9384432	0.9617313	0.2492068	0.8437393	0.5189273	0.8659403	1.519406	1.1221949	1.3782157
[Ribosomal protein L6]	1.253239	0.8449284	1.3278698	0.9578304	1.0378847	0.8988153	0.8761715	1.0189527	0.9220213	1.005176	1.0348061	0.8341015	0.9262213
Organic cation transporter 3	1.0020739	1.0025845	0.9501709	0.9810325	0.8992357	1.1004934	1.1004855	1.2534969	1.0935993	1.0776142	0.9963742	0.9381084	0.9381084
Calpain 2	1.3093318	1.4787533	1.3528547	1.0078929	1.0187578	0.9188151	0.9732453	1.0218024	0.9828903	0.945152	1.013435	1	0.9742846
Phase-1 RCT-102	0.6138431	0.9075422	0.8654161	0.8490434	0.6650832	0.5583635	0.382954	0.4721198	1.2196081	0.8758773	0.8047291	1.3712068	1.3858229
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.6603369	0.5281606	0.627035	1.2279987	1.0335342	1.0669224	0.6289416	0.7580545	0.9166246	0.9875444	1.1539888	0.9181049	1.0572339
Phase-1 RCT-227	0.9885414	1.1154537	1.1470227	0.8528102	0.8281975	1.4431889	0.6307741	0.8302748	0.6260063	0.6572302	0.8640105	0.6245602	0.8048629
N-hydroxy-2-acetylaminofluorene sulfoxidtransferase (ST1C1)	0.5729623	0.5614737	0.6174232	1.045023	0.9228173	0.8236575	0.4771281	0.7114425	0.9279153	1.2160424	0.8657607	1.0632866	1.0632866
Calthepsin S	0.9173963	0.8592099	1.0205146	0.9101036	0.6704568	0.7873159	0.8421355	1.1595737	0.7847089	0.8652605	1.165069	1.3177131	1.048874
Apolipoprotein CII	0.7568777	0.8064852	0.7821947	1.028612	1.2394449	1.1380144	1.3020456	1.1004078	1.5180202	1.3591791	1.1904477	0.999948	1.2352605
Cytochrome P450 2A3	0.7622909	0.947782	1.2104001	1.1409347	0.8078592	0.8607173	0.9509179	0.685173	0.8606784	0.9893776	0.9893776	1.0284188	1.0284188
Cytochrome P450 2C23	0.8131651	0.8117639	0.912873	1.0025927	1.0532854	0.8382247	0.9681074	1.3112989	0.7230948	0.7749696	0.6826123	0.6833655	0.8507431
Apolipoprotein C1	0.5502043	0.5663	0.5768477	1.1080104	0.9438011	1.1849256	0.8075554	1.107757	0.6201949	0.7919222	0.8823807	0.6802834	0.7912113
Betaine homocysteine methyltransferase (BMT)	1.0751051	1.7301015	1.1030817	1.28565	1.3552231	1.2263014	2.003289	1.2810035	1.129746	1.5316123	0.9437009	1.2850422	1.7162597
Paraoxonase 1	0.4811081	0.7051394	0.8312656	0.9204702	0.8090153	0.9116302	0.5435456	0.9548219	0.5735727	0.7498099	0.8411365	0.7353622	0.6803971
Phase-1 RCT-207	1.1393545	1.1142051	0.9087126	1.1143657	1.2271461	1.2290782	2.4399507	1.3877909	1.3872777	1.0244944	1.0684944	1.2428136	1.1899586
Calthepsin B	1.0745515	0.9731555	1.077813	0.8980445	1.000247	0.9889227	1.1264436	1.143756	0.821878	0.8303102	0.9787697	0.8702186	0.9576992
Phase-1 RCT-144	0.9927374	1.0228378	1.0252868	0.9146091	0.9581392	0.9061182	0.8721893	0.9921536	1.087491	0.9817022	0.8491012	1.048176	1.02095

Alpha-1 microglobulin/bikunin precursor (Ambp)	0.8412198	0.8851407	0.9798541	1.042535	1.0968413	1.0188049	0.9837073	0.9681382	0.6530889	0.766957	0.8109956	0.6906587	0.8181381
Cylin D1	0.5014578	0.642071	0.745113	0.7302305	1.2339196	0.9680044	0.8899934	0.5690771	0.7405773	1.0566667	1.0548968	1.4941002	1.0021977
Presenilin-1	0.6211982	0.6372717	1.2118648	1.015082	0.9073956	0.8695355	0.3900196	0.5327652	0.3854422	0.7789034	0.821778	0.7977765	0.8463997
Protein tyrosine phosphatase, receptor type, D	0.8399901	0.8772157	0.6833298	0.9555025	1.1489182	1.1026882	1.0931877	1.0210359	0.6388359	0.7267856	0.6862176	0.7377728	0.6965625
Multidrug resistant protein-1	1.465797	1.632823	1.046808	1.6463925	1.5136085	1.339567	7.1580973	12.259248	1.1739591	1.0477154	1.0138515	1.2185552	1.1261878
Cathepsin L, sequence 2	0.9682182	0.856351	0.8732222	1.1819208	0.9380166	0.9913082	1.2295662	1.9855471	0.8275333	0.8381416	1.077718	0.8865035	0.8519818
JNK1 stress activated protein kinase	0.9782964	1.0721385	0.7660409	1.3321251	1.0617193	1.3050778	1.3855706	1.1870356	0.7572886	0.9421501	0.9663551	0.8081523	1.0172044
Phase-1 RCT-43	0.7885317	0.8540378	1.0034727	0.8866287	0.9652312	0.8788087	1.2132287	0.8174197	1.2282278	0.9827249	0.9028301	0.9440584	0.9200205
Tissue plasminogen activator	0.7850498	0.9588322	1.1758537	0.9071759	0.9383342	0.8794575	0.7172432	0.9047335	0.9386561	0.7707032	0.8564374	0.9877828	0.9692371
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.7720608	0.7759548	0.8322064	1.0563993	1.0078319	1.0030812	1.0160139	0.9620779	1.001441	0.9635546	1.028611	0.9985704	0.9760462
Phase-1 RCT-173	1.0117295	0.9951286	0.9383324	0.967313	1.2230926	0.938926	0.9437677	0.7849672	1.3240677	1.031273	1.2527386	1.2271923	1.5148808
Ornithine decarboxylase	2.436342	2.182882	1.648856	1.0758299	1.2340987	1.100724	1.3363043	1.2351828	1.15073	1.2374029	1.1110508	1.1016673	1.2372446
Zinc finger protein	0.8306956	0.7912155	1.1229216	1.0573537	1.0604855	1.071181	1.1038078	0.8459533	1.0587054	0.8424782	0.9429043	1.0235914	0.9309002
CDK108	1.1770562	1.084764	0.9766247	1.2341902	1.0652301	1.2394243	0.7860717	0.8754481	0.9559699	0.7847808	1.0417413	1.0320579	1.1897756
Phase-1 RCT-117	1.3564394	0.9487007	0.924093	0.8717595	0.9649923	1.0729719	0.9323651	1.1238887	1.032555	1.0889145	1.2259506	1.4009981	1.1803563
(Phase-1 RCT 98)	0.8729877	0.9032333	0.9594088	0.9956983	0.8693985	0.9625843	1.0712808	1.0464035	0.8266564	0.933033	0.7495763	0.8982525	0.9223698
Aquaporin-3 (AQP3)	0.9996985	1.0529689	1.0655448	0.9857577	0.9145036	0.8474382	1.0010842	0.9962442	1.2083824	1.0216213	0.9562349	0.9864455	0.9686655
Cholesterol esterase	0.9638902	0.5492982	0.6525343	1.1883056	0.9688797	0.9201106	0.2536994	0.676498	0.4822761	0.6470948	0.8342801	0.9227808	0.9537233
Ribosomal protein S17	1.7802523	1.462145	1.3874545	1.0616977	1.1004155	0.92796	0.890899	1.0431285	0.685667	0.748722	0.8671934	0.72198	0.7945023
Poly(ADP-ribose) polymerase	1.2570182	1.2958785	1.1166209	0.9885372	1.0537622	0.9870325	0.8264679	1.0871538	1.276317	1.0518146	1.0717946	1.0127122	1.1415846
Annexin V	0.5290656	0.6584416	0.9804512	0.972818	0.9868605	1.0157284	0.9315673	0.8978122	0.7842762	1.0576888	0.9155309	1.0552477	0.9798816
Phase-1 RCT-33	1.3133556	1.2810203	1.1168575	0.800114	0.9499743	1.0281783	0.7855064	1.1182579	1.2744461	1.1710119	1.1115637	0.959688	0.9972343
Phase-1 RCT-61	0.9260918	1.1318198	1.2932565	0.9228319	1.1067811	0.9209172	1.2266287	0.7307056	1.8413651	0.8607473	0.9380233	1.1533614	1.0625682
Retinol dehydrogenase type III	0.8956609	0.8302253	0.8281531	1.3155967	1.10271	1.2432023	1.0921876	1.4052343	0.824669	1.0094551	1.0749313	0.8182661	0.855442
ATPase inhibitor (rat mitochondrial IF1 protein)	0.8738809	0.8041205	0.7800946	1.0799079	0.9519141	0.9855038	0.4833648	0.8897038	0.7027428	0.7923535	0.8057063	0.7242658	0.8436141
Thymidylate synthase	1.1466689	0.9241809	1.502107	1.1226279	1.2650648	1.2070516	1.462114	1.4269938	1.1429355	1.0072016	1.063028	1.137898	1.1587468
Interleukin-18	0.942134	0.9289005	0.9400477	1.0177032	1.0280785	1.2137518	1.0933931	1.1081985	1.4590118	1.0065275	1.184717	1.1894325	1.1316587
Lecithin:cholesterol acyltransferase	1.1582296	1.0635988	0.9775313	0.7769228	0.9532017	1.0029329	1.4331611	1.501615	0.866977	1.0310174	1.0167733	1.069258	0.9517972
Contrapsin-like protease inhibitor (CPI-21)	0.6662508	0.993955	1.1830107	0.9040449	0.5940787	0.7183877	1.009088	0.4651098	0.8877485	0.8768019	0.7489792	1.146548	0.8854579
Proliferating cell nuclear antigen gene	1.1399528	1.2204137	0.6917663	1.1063172	1.0461594	0.9053529	1.164426	1.0882758	0.9720637	0.9666366	0.9698149	1.2146982	1.0792899
Phase-1 RCT-230	1.2828422	1.1635735	0.9295446	1.100251	0.9121608	0.952149	0.9616602	0.7969879	1.3620398	1.0917063	1.0846314	1.1029825	1.1342537
Cytochrome P450 2D18	1.6493651	1.3937049	1.5848188	1.1304383	0.992913	1.2354817	0.9226562	1.0882192	0.8608636	0.9259482	0.866269	0.808384	0.9133211
Phase-1 RCT-48	1.0715171	1.2108082	1.4172335	0.8710354	0.698057	0.8740051	0.5653416	0.6532077	0.7848495	1.1858199	0.9226449	1.0791743	1.1780403
Phase-1 RCT-292	1.135403	1.0933281	1.0464078	0.8957689	0.9870327	0.9878346	0.9844391	1.0373594	1	0.9488284	0.9427624	0.9088342	0.9553739
Arginosuccinate synthetase 1	1.03359	1.5268266	1.2126695	1.0997972	1.2806413	1.0294539	1.990084	1.2036899	0.900635	1.1229535	0.9097535	0.849264	1.10759
C-reactive protein	0.7145932	0.7865626	0.6521254	1.0010544	1.1012925	0.9968191	1.049562	0.9948837	0.9672802	0.7259065	0.7354788	0.7961632	0.7977885
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint																	
(1)																	
Compound-Dose		CLO 250	CLOZ 45	CLOZ 45	CLOZ 45	CLOZ 180	CLOZ 180	CLOZ 180	CMC 30	CMC 30	CMC 30	CMC 30	CMC 30	CMC 30	CMC 30	CMC 30	CMC 30
Animal Number		1849	2427	2428	2429	2437	2438	2439	157	158	159	2147	2148	2149	2149	2149	2149
Liver Toxicity Necrosis Classification		no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name																	
Osteocalcin		0.942643	0.8345597	1.0782278	1.168362	1.0470521	1.1242033	0.9710334	1.2889309	1.0545086	1.3016441	0.9385828	1.0281457	1.0240222			
Statmin		1.1342403	0.8232292	0.8721635	0.8904902	0.8432205	0.9238337	0.9238337	1.138056	0.9238337	0.9238337	0.9238337	1.0233871	1.0455183	1.0344216		
Calpain I heavy chain		1.1058453	1.0424662	1.0292034	1.0741041	1.0335804	1.1515846	1.0661706	1.1056103	1.0210285	1.0484275	1.0141394	1.0665535	0.9659108			
Phase-1 RCT-179		0.9182175	0.8469471	0.907483	0.8085188	0.8478805	0.8052818	0.8416673	1.0118148	1.048845	1.0120175	1.0019364	1.182583	0.8731843			
Phase-1 RCT-107		0.8686108	1.0481666	1.1168023	0.9649782	0.9462215	1.149151	1.0776579	0.9765928	1.0210359	0.9047337	1.0753106	1.1667845	1.1282918			
Heme oxygenase		0.8591921	1.3140186	1.0582023	1.6809986	1.212103	1.178355	0.977801	1.3180435	0.9512541	0.9475815	0.7156243	1.1939757	0.7817963			
Collagen type II		1.4810424	0.8277276	0.8608191	0.9539287	0.9795343	0.9928788	1.1111845	0.8959587	0.7719536	0.9475815	0.7156243	1.1939757	0.7817963			
Phase-1 RCT-81		0.8198836	1.0518415	0.933387	1.036301	1.0788796	1.2808901	0.9992284	0.9592848	1.0238173	1.0924891	1.0460423	1.1938634	1.3246374	1.4996918		
Glycine methyltransferase		0.8128147	1.1744595	1.2875259	1.026081	0.8554119	1.212035	1.124148	1.0499519	1.3138109	1.0460423	1.1938634	1.3246374	1.4996918			
Cystatin C		0.8513537	1.3801779	1.0837369	0.8811646	1.0186778	1.1224916	1.1194959	1.2707493	1.2188628	1.7873616	0.9445955	1.0127674	0.8913714			
Melanoma-associated antigen ME491		0.9412081	0.8294854	0.9276912	1.6786665	0.9235169	0.9895932	0.8677864	0.9741255	0.9739841	0.9556282	1.0318807	1.0243378	0.996798			
Phase-1 RCT-146		1.0771872	0.851918	0.907967	0.968508	0.9013335	0.8263077	0.695773	1.4135207	1.2651992	1.1447126	0.8709148	0.9287542	0.971497			
Gamma-actin, cytoplasmic		0.6925843	1.0573552	0.7921193	0.9282278	0.8029016	0.8263077	0.695773	1.4135207	1.2651992	1.1447126	0.8709148	0.9287542	0.971497			
Adenine nucleotide translocator 1		0.8393988	0.7180591	0.7845273	1.1559027	0.8428036	0.8258902	0.8009629	0.8508092	0.8114212	0.7989343	0.9027349	1.0615385	1.1587278			
Thymosin beta-10		1.071188	0.9140514	0.753304	1.017889	0.9489488	1.0114425	0.9842529	0.9593946	1.0070457	0.9062388	1.1145022	1.2015841	0.8726415			
Insulin-like growth factor I, exon 6		1.4090173	0.8523994	1.0944959	1.5016441	0.8435549	0.968959	0.8064049	1.6081125	2.286622	1.7243525	0.8712807	0.9729604	0.8705328			
Phase-1 RCT-78		0.808614	1.0708239	1.0255597	1.0231851	1.1854188	1.0483288	1.0378058	0.8780007	0.9708608	0.9448109	0.8998479	0.98756	0.9054032			
Alpha-2-microglobulin		1.1094667	1.3477885	1.0173719	0.4448824	0.638858	0.5702727	1.0688428	1.5135995	0.9594142	1.238251	0.8542937	1.008148	1.1288616			
High affinity IgE receptor gamma chain (FcεR1gamma)		0.9104615	1.1244863	1.070865	0.9305428	0.8970236	1.0981688	0.9284319	1.0997562	0.9764376	1.0102549	0.8836824	1.105533	0.9361463			
60S ribosomal protein L6		0.8597454	0.8183888	0.8841578	0.9023686	0.883939	0.9862794	0.8509998	0.9209818	0.8845927	0.8731844	0.9177923	1.0078622	0.9318472			
IgE binding protein		1.0087712	1.2024622	1.1438608	1.5231959	1.0140986	1.3287609	1.1711911	1.3009084	0.9910353	1.0985963	0.9150372	1.0985963	0.898968			
Phase-1 RCT-149		1.1087505	0.9315257	0.9755478	1.0579466	1.0932525	1.3789416	1.0135627	0.9890046	0.9709206	0.9045722	0.9630014	0.9630014	0.9441801			
Cytochrome P450 2C11		1.1206931	1.3018594	0.9565214	0.9814552	0.8808082	1.0999449	1.2041823	0.8436419	0.7045204	0.7910663	1.0046109	1.0602225	1.308577			
Uncoupling protein 2		1.2152932	0.9616864	1.0083333	1.1621724	0.8414444	1.0293837	0.945458	1.213778	0.9315023	0.9946378	0.9759121	1.0233168	0.8613807			
Cofilin		0.8533951	0.8751642	0.9295514	0.8663463	0.8012654	0.9817379	0.8225982	0.8364256	0.9502775	1.0385445	0.8624392	1.044969	0.8618403			
Alpha-tubulin		1.0446901	0.889751	0.9065345	0.7655936	0.8253847	0.8622235	0.818028	1.3389484	0.8272827	0.5871934	1.1459824	1.0066224	1.328018			
Stearyl-CoA desaturase, liver		0.5725889	2.2190535	2.052268	0.7928193	1.6827136	1.7187047	2.110249	0.9209686	2.2987887	0.8117778	0.8686261	1.1760027	0.4962333			
Glutathione S-transferase theta-1		0.8401488	0.978968	0.8282979	0.8789942	0.9676088	1.0359911	0.813502	0.6808211	0.8649103	0.7386033	1.3050172	1.0518357	1.1374291			
Alpha-1,2-acyltransferase		1.2444804	1.1404507	1.3460823	1.234495	1.2963603	1.1903786	1.4372929	1.2903057	1.3973113	1.1638727	1.0842804	1.3014586	0.7029221			
Phase-1 RCT-138		0.8745452	1.0485007	1.0358986	1.104476	1.0327804	1.0940216	0.9785894	1.0235498	0.9277945	1.0145626	0.8300493	1.0324403	0.9088556			
Phase-1 RCT-285		1.0182475	1.0704443	1.0278728	1.2044538	0.9733306	1.1358646	0.957106	1.1949276	1.1393987	1.1225487	1.2035258	1.002452				
Phase-1 RCT-164		0.8711573	1.0004438	0.8778939	0.8515687	0.8965274	0.9174798	0.8840923	0.850562	0.9055933	0.7644439	0.9038491	1.0173072				
Alpha-2-microglobulin, sequence 2		0.9040657	1.2175817	1.163226	1.2342695	1.1465824	1.2038592	1.3058445	1.3707089	1.3301984	1.6245881	0.9173663	0.8591226	1.0186356			
Blivudin reductase		1.18346	1.008118	0.9469398	0.9911757	0.857626	0.986672	0.8304763	0.9141613	0.7243791	0.7587318	1.0752407	1.081202	1.0037645			
Phase-1 RCT-121		1.1120313	0.9014308	0.8794441	0.9311649	0.8848279	0.8327172	0.7945927	0.931588	0.778236	0.8180615	1.0709227	1.0668179	0.9305876			
Dynamin-1 (D100)		0.8949668	1.2312182	1.1141444	1.0117598	1.1697279	1.0276473	1.2025849	0.9570632	1.0458424	1.0423245	1.0454576	1.0893102	0.9337162			
Phase-1 RCT-192		0.8240222	0.963884	1.0092735	1.3018557	0.9193401	1.0517389	1.0652894	1.1356978	1.0617926	0.9793063	0.9784923	1.0990236	1.0780496			
Fatty acid synthase		0.5880244	1.3990668	1.0928728	0.8346264	1.5900842	1.5051484	1.3524806	0.4084545	0.9070243	0.4497573	1.4917884	0.71807	0.7325774			
Phase-1 RCT-211		1.1048447	1.0216249	1.0071342	1.3007137	1.0031493	1.1367681	1.049017	1.4891303	1.2580413	1.013599	1.1128601	1.0728202	1.0272896			
Ribosomal protein S9		0.8848304	0.7682277	0.9330423	0.9993905	0.8167642	1.078867	0.8968208	1.0048176	0.8802258	0.8158289	1.1216217	1.094349	1.624703			
NADP-dependent isocitrate dehydrogenase, cytosolic		0.8452731	0.8197544	0.9239048	0.9535837	0.8552055	0.8077273	0.9700021	1.0891757	1.117215	0.8177962	1.0837171	1.0205768				
Phase-1 RCT-57		1.0513443	0.8705551	0.7734267	1.06478402	0.8586693	0.865525	0.7655206	0.9441357	0.8338575	0.8308747	0.9605545	0.8807865	0.9989284			
Phase-1 RCT-36		1.0115303	0.9271184	0.8749132	0.9769129	1.107173	0.957581	1.0611248	1.0642142	1.1883763	0.8955938	0.8560463	0.9046834	0.8644375			
Apolipoprotein AII		1.1458043	1.2525221	0.8341496	1.0258114	1.0280713	1.1778276	1.1358465	1.0280152	1.2074348	0.9191806	1.1803539	1.0616817	0.9864375			
Phase-1 RCT-68		0.9824663	1.0027404	0.9281353	0.9344307	1.0251151	1.0465014	0.9752446	1.0768628	0.9868926	0.9865466	1.0561926	1.0736389	1.0156757			

Table 36

Multidrug resistant protein-2	1.3751001	0.6773307	0.9304552	0.7586665	0.8323587	0.88363	1.040785	0.8804286	0.9993833	1.173137	0.9741488	1.100803
Phase-1 RCT-39	1.1247054	1.0507189	0.9804726	1.0445082	1.0072001	1.0939737	1.049271	1.2567	1.2196293	1.1933078	1.021753	1.1314522
NIPK	1.1751956	1.0480307	0.0871515	1.062827	1.0193776	1.0201266	0.987518	1.0381786	1.2986808	1.1326978	0.9863511	0.9833118
Fl-ATPase beta subunit	0.860224	1.1487073	1.0759132	0.9750627	1.0550187	1.0201844	0.9894683	1.1297844	1.2750488	1.3521137	0.9821389	0.8590081
Elongation factor-1 alpha	0.8435195	0.9204183	0.945982	0.928986	0.8789715	0.8481195	0.7768153	1.2237678	1.3021058	0.8950588	0.9516273	0.9377559
Phase-1 RCT-24	1.137291	0.9935914	1.0015016	0.8978265	0.9457842	0.9283865	0.9967684	1.2737138	1.0266135	0.7375141	1.2605088	1.075093
Beta-tubulin, class I	1.0499293	1.2325191	1.2749845	1.1082929	1.1240833	1.0384737	0.8635567	1.303133	0.861418	0.7138693	1.2561872	1.1219414
14-3-3 zeta	1.4380044	0.9167296	0.8579238	0.8495657	0.8049418	0.8432838	0.7632357	1.0394999	0.8428963	0.7429472	1.1294906	1.0039848
Alpha-prothymosin	0.8847184	1.0214623	1.1052212	0.87868	0.8763554	0.9818801	0.8613861	0.8378611	1.0330721	1.1462225	0.9833648	0.8037432
Phase-1 RCT-58	0.8444083	0.6045102	0.953896	1.3248037	0.7668957	0.9067524	0.4473656	1.3915468	0.7155982	0.958391	1.3192601	0.720627
Phase-1 RCT-290	1.1688259	1.2627706	1.4786121	0.87868	1.5022181	1.3311437	1.6472455	1.2492093	1.2436068	1.3814807	1.171331	0.9255006
Transitional endoplasmic reticulum ATPase	1.1286395	0.9057104	0.9861389	0.7542841	0.8593006	0.9198292	0.7603732	0.6977691	0.7633063	0.740975	0.9006811	0.9988021
Beta-actin	1.0713162	0.7843592	0.7819946	0.6980713	0.7010846	0.8523393	0.8061528	1.1827754	0.8142928	0.721509	1.255621	1.1514144
Thioredoxin-1 (Trx1)	0.8908578	1.3379657	1.1337161	1.2200658	1.03099	1.0583211	1.2064846	1.6019262	1.529026	1.4931053	0.9464825	0.9021819
Phase-1 RCT-174	0.9667856	0.9297754	1.009597	0.8652784	0.8484521	0.9476061	1.0928543	0.9278058	1.0658637	0.9582974	0.9831263	1.0509114
Beta-actin, sequence 2	1.0445835	0.9388587	0.9820979	1.0093621	0.8409578	0.9703475	0.812731	1.1307719	0.9017224	0.8868504	1.0164118	0.9904165
Phase-1 RCT-109	1.2552323	1.0066521	1.0455092	1.1691853	1.0093459	1.1760856	1.2301489	1.2973069	1.2506782	1.0885148	1.163463	1.022853
Phase-1 RCT-154	1.5428135	0.8010297	0.8680368	0.9569144	0.8787327	0.9004101	0.9257489	0.9158813	0.9100363	0.9377422	0.9750838	0.9837943
Hypoxanthine-guanine phosphoribosyltransferase	0.9887353	0.9609381	0.9592854	0.8918157	0.9240828	0.9057809	0.9645646	0.8651931	1.0298307	0.9170283	0.9127287	1.0773463
Phase-1 RCT-213	0.9689691	0.8728406	0.9892727	0.8355832	0.8905777	0.9453488	0.9125257	0.9369665	0.8941652	0.8575115	0.9256769	0.9784131
Phase-1 RCT-280	1.0213096	1.0197037	0.9518663	1.0131873	1.0153747	1.1212322	1.0150019	1.2438421	1.1883491	1.2890058	1.023167	1.2436676
Phase-1 RCT-12	1.091345	1.001728	1.0018955	1.1101578	1.0449466	1.0380212	1.0296527	1.1355	1.0437165	0.8413268	1.1929742	1.026609
Phase-1 RCT-293	0.9035178	1.1403168	1.0844103	1.1480901	1.2325428	0.9077281	1.0792147	1.432913	1.3782776	1.2854843	0.9867952	1.2390474
Ribosomal protein S8	0.8039578	1.0604315	1.024273	1.0801711	1.0054064	0.9087281	1.0792147	1.432913	1.3782776	1.2854843	0.9867952	1.2390474
Pyruvate kinase, muscle	1.1761512	0.9510486	0.8413215	1.242154	0.9232183	1.0255103	0.9978728	1.0617803	1.07438	1.031344	1.0614388	1.0884738
Nucleoside diphosphate kinase beta isoform	1.0326812	0.9978365	1.0318128	0.9883455	1.1055046	1.2404032	1.0605898	0.860248	0.9533583	0.8102428	1.0120844	1.1983564
p55CDC	1.0938914	0.862381	0.8985666	0.9518141	0.7676137	1.021652	1.2887709	0.8829361	0.7024952	1.0935701	1.0237706	1.0450071
Phase-1 RCT-158	1.049444	0.9542208	0.8821846	0.9307423	0.8823205	0.992625	0.8158907	0.8633345	0.8841302	0.8032814	1.1430846	1.0538337
Ribosomal protein L13A	1.2459906	0.9600459	1.0376356	1.1930791	1.0101775	1.0950662	1.0986358	1.3920814	1.3130094	0.712649	1.2529446	1.1315937
Phase-1 RCT-258	1.0349445	0.8421285	1.0137233	0.9774554	0.8604779	0.9990885	0.7876647	0.8473513	0.8703022	0.8473553	0.9707671	0.9860947
Insulin-like growth factor 1	0.9441771	1.0052006	1.0137233	0.9774554	0.8604779	0.9990885	0.7876647	0.8473513	0.8703022	0.8473553	0.9707671	0.9860947
Cytochrome P450 3A1	1.8832273	1.084458	0.9037803	0.7754917	0.6978479	0.5993384	1.0885098	1.8228986	0.6517804	1.5981155	1.3256538	1.2951434
(Ribosomal protein L6)	0.8602765	1.1238925	1.1153653	1.076916	1.0744066	1.0874766	1.1301308	1.1384644	1.1581252	1.1706502	1.019827	1.0911468
Organic cation transporter 3	0.8824397	0.8461368	0.9043416	0.8233886	0.9030331	0.8646184	0.8776584	0.8466633	0.8288421	0.9120985	0.9284104	0.9521025
Calpain 2	1.0173839	0.8874924	0.961621	1.0530019	0.9356594	0.9630903	0.9845938	0.9971196	0.9743212	1.073631	0.9535494	1.011866
Phase-1 RCT-102	1.1545914	0.8562848	0.9860468	0.853003	0.6384113	0.6860642	0.5705361	1.3789635	1.2537564	1.0675772	0.6658932	0.7827386
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	1.0141022	1.1095665	0.943151	0.9182163	0.9182288	1.1084393	0.84232	1.5460588	1.612324	1.2344618	0.8544525	1.2272296
Phase-1 RCT-227	0.7370678	1.7778434	0.99026	0.994734	1.424557	1.2002728	0.922794	1.4171139	1.2272613	1.4288489	0.8707761	0.9298356
N-hydroxy-2-acetylaminofluorene sulfoxidase (ST1C1)	1.0626724	1.1053389	0.9853115	0.8514848	0.9281993	0.9099991	0.8320577	1.8389548	1.6019073	1.7789648	0.8115046	1.2367915
Cathepsin S	1.236654	1.2678462	1.1386571	1.0732069	0.9096872	0.9115765	0.7995523	0.8223536	0.6180137	0.7601706	0.9936655	1.0388556
Apolipoprotein CIII	0.7963184	1.0141903	0.9164669	0.7260012	0.8667428	0.8842183	0.7832887	0.7365875	0.8518068	0.9286248	0.866156	0.9071874
Cytochrome P450 2A3	0.9155202	1.4032549	0.9727761	1.2020869	1.0968564	1.0539594	0.9870355	1.1841499	1.2349095	1.4814113	0.8538348	0.9926203
Cytochrome P450 2C23	0.8478066	1.0282516	0.975217	1.146323	1.146848	1.0763384	0.7897866	1.0035028	0.8447866	1.0660838	0.8097371	1.1567591
Apolipoprotein C1	0.5750701	1.2010529	1.1213264	0.7563356	0.8988373	1.3660082	1.128233	0.8862153	0.9384623	0.9418523	0.897721	0.815743
Betaine homocysteine methyltransferase (BHMT)	1.2725301	1.9963094	1.7994177	1.3536216	1.7182473	1.7944863	1.946179	1.3928268	1.4566138	1.6326904	1.1806445	0.8981399
Paraoxonase 1	0.7640103	0.9410453	1.0143371	0.9137919	0.9978377	0.9257082	0.8086424	1.0672224	1.4343208	1.6888217	0.8230721	0.8554172
Phase-1 RCT-207	1.118057	0.832097	1.1198542	0.8379142	0.8646782	0.9950423	0.8967421	0.9482688	0.8547812	1.1983107	0.9121698	0.9783226
Cathepsin B	0.8738011	1.0886652	1.0741798	1.0088811	1.1143695	1.0097767	1.069271	1.0475775	1.1001062	1.129188	0.7163477	0.9786389
Phase-1 RCT-144	1.03398	0.8709105	0.918478	0.800833	0.8436075	0.8310155	0.9012768	0.7581425	0.8790797	0.7973008	0.8885905	0.9180998

Alpha-1 microglobulin/bikunin precursor (Ambp)	0.7853707	1.0675732	0.9368026	0.9887813	1.08457	1.24618	0.9630785	0.9169998	1.025451	1.1161635	0.7550666	0.9001037	0.886822
Cyclin D1	1.1624887	0.6729055	0.8940419	0.8954247	0.8192134	0.6860701	0.5582302	0.7159886	0.7777053	0.8142181	1.0794629	0.9045079	1.4580586
Presenilin-1	0.9003035	1.0376314	0.9848902	1.3693697	1.1132132	1.1686412	0.9258992	0.8585927	0.9522178	1.3341583	0.7373524	0.7190445	0.9450786
Protein tyrosine phosphatase, receptor type, D	0.6918535	1.2425138	1.0054802	1.2116327	1.1251897	0.9600487	0.9470097	1.3501521	1.4853935	1.5429028	0.8469745	1.2397736	0.9041018
Multidrug resistant protein-1	1.3986751	0.7609457	0.9558049	0.9530794	0.7813795	0.7809587	0.7335182	0.9020272	0.8103981	0.8790863	1.0690937	0.9791863	1.1057808
Cathepsin L, sequence 2	1.2680121	0.7890319	0.7665939	1.110749	0.8742498	0.8270204	0.9004023	1.4328637	1.3549007	1.3874577	0.9572023	1.0576174	1.128434
JNK1 stress activated protein kinase	0.8792153	1.5390178	1.4408097	1.089009	1.1040957	1.2033893	1.1635323	1.1550738	1.1547185	1.0531117	1.1547185	1.0531117	1.0829595
Phase-1 RCT-43	1.0383524	0.7712183	0.7795381	0.8628752	1.0391754	0.8058645	0.7445085	0.9104521	0.890032	0.7361316	1.114337	1.0715463	1.0066051
Tissue plasminogen activator	1.0363616	1.0099232	1.0170149	1.028418	0.9573944	0.9035504	0.9759246	1.2411344	1.183396	1.1391244	0.8539276	0.9831994	0.8202228
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.9373851	0.8161327	0.921292	1.0369884	0.8535852	1.0132788	0.908407	1.0264703	0.9279189	0.8954997	1.0826395	1.070663	1.0792493
Phase-1 RCT-173	1.310106	0.8001115	0.9233553	1.127942	0.78852	0.8587228	1.2032715	0.9348309	0.8314083	0.8492696	1.2367823	0.7943306	1.0552132
Omitline decarboxylase	1.490565	0.9862871	0.9391763	0.9184066	0.900392	0.939783	0.8897621	1.1282605	0.8181173	0.7928803	1.3094934	1.0750128	1.1413779
Zinc finger protein	0.8537275	0.7956351	0.941107	0.9400952	1.0067227	0.8663756	0.9178043	1.0014509	0.9191709	1.0496218	0.8478718	1.0078776	1.0913863
CDK108	0.9889569	1.0606788	1.0925049	0.7448911	0.9448747	0.8606912	0.9875216	1.2156453	0.9753763	1.0356503	1.0263367	1.0032209	1.1511014
Phase-1 RCT-117	1.5620015	0.9791164	0.9561293	1.1319755	1.1979011	1.2137002	1.1458724	1.0683085	0.8979606	1.0978026	1.0824937	0.7908813	0.8764553
(Phase-1 RCT 98)	1	1.3127183	1.0088943	1.3378121	1.0460153	0.9725323	1.0189484	0.9272282	1.027321	1.0338976	0.958545	1.0640755	0.969441
Aquaporin-3 (AQP3)	0.9199994	1.0281225	0.9805326	0.9566095	1.0117993	0.9222493	0.9803752	0.9521	1.0134764	1.0130141	0.978933	0.9410775	1.0308263
Cholesterol esterase	1.1613569	0.80945	0.8798002	0.5625244	0.9221801	1.0857216	0.9459616	1.6335303	1.5597183	1.5429286	0.8615101	0.9514881	1.1196235
Ribosomal protein S17	0.7032917	1.0104731	0.9323593	1.0085004	0.9221801	1.0857216	0.9459616	1.6335303	1.5597183	1.5429286	0.8615101	0.9514881	1.1196235
Poly(ADP-ribose) polymerase	1.0406271	0.9228308	0.9331031	0.8862852	1.0311784	1.0168998	0.8603865	0.7781844	0.8459557	0.7581823	1.0325987	0.951148	1.0048362
Annexin V	0.9139581	1.0081031	1.2588427	1.0384034	0.978928	0.9014699	0.9790918	0.9281032	0.7993922	0.826671	0.902122	0.9733822	1.0707493
Phase-1 RCT-33	1.073124	1.0037721	1.0876316	1.2376653	1.1876088	1.0312929	1.1231512	1.1003571	1.3398391	0.8580387	0.7894226	0.8703879	0.7648079
Phase-1 RCT-61	1.5671376	0.7848545	0.8341611	0.9441888	0.8370518	0.9097829	0.7101918	0.8778713	0.8018869	0.9305973	1.0540262	0.9951435	0.8698806
Retinol dehydrogenase type III	0.9214893	1.1729091	0.9117292	1.0625468	0.8806607	1.102696	0.9090591	0.9159572	0.9964966	0.8528819	0.8671441	0.9571378	1.1037244
ATPase inhibitor (rat mitochondrial IF1 protein)	0.6935291	0.9908615	0.9549384	1.0543938	0.8842461	0.8280381	0.9317204	1.3941047	1.4625309	1.5045375	0.7282732	0.902312	1.0929203
Thymidylate synthase	1.0540583	1.0709006	0.996575	0.919839	0.9630978	0.9348081	1.0721132	0.9670084	0.7003186	0.7030637	0.981326	0.9656339	1.0690069
Interleukin-18	1.0816289	0.884092	0.9454166	0.9376887	0.9557911	0.9757918	1.0157405	0.9305471	0.7892528	0.8257437	0.9886783	0.9151627	1.0417435
Lecithin:cholesterol acyltransferase	0.9233862	0.9697749	1.0571389	0.7784894	0.8300314	1.0457162	0.8074275	1.0863485	1.1005692	1.0183388	0.8875993	1.1093799	1.0365994
Contraptin-like protease inhibitor (CPI-21)	1.0240518	0.824904	0.8274779	1.1587369	0.7659369	0.733681	0.7606226	1.6121846	1.475946	1.5521622	0.9278949	0.923065	0.9508694
Proliferating cell nuclear antigen gene	1.0222218	0.9025081	0.9362502	0.9030359	0.9380521	0.9371417	0.9124237	1.0346377	0.8162182	0.8265908	1.078667	0.9518063	0.9973624
Phase-1 RCT-230	1.1584318	1.0846818	0.979135	1.1513941	0.998303	1.0771129	1.0527808	1.3307012	1.0715871	1.0526913	1.1171075	0.9580235	0.9127675
Oxyochrome P450 2D18	1.0619929	0.9194487	0.8539489	0.7847695	0.9243927	0.9885009	0.8048045	1.0616637	0.9235806	0.8977004	0.9671055	0.8959737	1.0467342
Phase-1 RCT-48	1.0653282	1.4655511	1.3113487	1.1287882	1.095861	1.2640314	0.8921831	0.9514334	1.0147374	0.8460403	0.8509872	1.0256742	1.0035248
Phase-1 RCT-292	0.9850354	1.070801	1.1326885	1.1530366	1.0917136	1.0794357	0.9769609	0.8362132	0.8390407	0.8824185	0.9232438	0.9848138	0.9543792
Agmatinase synthetase 1	0.7447112	1.9207675	1.6019393	1.3079243	1.3719753	2.073992	1.7955859	0.8477578	1.0763304	1.0284709	1.072223	0.9436058	0.8247016
C-reactive protein	0.7730857	1.2024	1.10192	1.1728142	1.1563897	1.0247034	0.9918584	1.1300908	1.0942255	1.1718067	0.804013	1.6750377	1.0280669
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint															
(1)															
Compound-Dose	CPHOS 100	CPHOS 100	CPHOS 100	CYCA 20	CYCA 20	CYCA 20	CYCA 80	CYCA 80	DEX 30	DEX 8	DEX 8	CYCA 80	DEX 30	CYCA 80	DEX 30
Animal Number	2157	2158	2159	427	428	429	437	438	1359	1347	1348	no	no	439	1357
Liver Toxicity Necrosis Classification	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Osteocalcin	1.0436045	1.067628	1.102224	0.896871	0.864158	0.9913811	0.8853764	1.1373097	1.168433	0.8928441	1.0287001	0.8928441	1.0287001	0.8928441	1.0287001
Slit1	1.0119145	1.0053306	0.8767463	0.7232014	0.6512485	0.8213362	1.0253643	1.2221406	1.0303411	1.057627	1.0630435	1.0995694	1.0461903	1.0630435	1.0461903
Calpain I heavy chain	1.0187091	0.9155572	0.9156488	0.9420722	0.8040061	1.1129271	1.0056458	1.2509898	1.2713994	1.1356795	1.0896665	1.1621914	1.0263918	1.1356795	1.0896665
Phase-1 RCT-179	0.983916	0.9271128	0.8622924	0.7956734	1.0344636	1.0024524	1.0044488	1.1354861	0.8659737	0.8659737	0.8659737	0.8659737	0.8659737	0.8659737	0.8659737
Phase-1 RCT-107	1.048173	1.1764516	1.5059857	1.2788833	1.0549026	0.8805143	0.7745631	0.6709359	1.0690493	1.8462869	1.017612	0.7180358	1.6642781	1.017612	0.7180358
Heme oxygenase	1.1161497	1.3533763	1.5083226	1.0948458	1.2645437	1.0805423	1.1430535	1.9947127	0.8094142	0.8310824	1.2104739	1.1638529	0.7467025	1.0805423	1.0805423
Collagen type II	0.948456	0.883928	0.623841	0.9747517	1.1707809	1.2848807	1.2807838	1.2925751	1.1667099	0.9739899	1.0804811	1.4139172	1.3096863	1.1667099	1.1667099
Phase-1 RCT-81	0.9792534	0.808452	0.908176	1.0374745	0.8984448	1.0707949	0.8833119	0.8894189	0.9340332	0.9332361	0.9449348	0.8668365	0.8784791	0.9340332	0.9340332
Cytidine methyltransferase	1.1597422	1.3787096	3.2440681	1.357226	1.5469682	0.9010144	0.7754315	0.548668	1.1235883	0.9821277	1.0131313	0.6512998	1.7141715	1.0131313	0.6512998
Cystatin C	0.9711461	1.1085692	0.9417244	0.9601196	0.9849886	0.7889171	0.8845341	0.8876274	0.8226437	0.8849866	0.8363519	0.7316357	1.0773005	0.8226437	0.8226437
Melanoma-associated antigen ME491	0.8571029	0.8831961	0.9164518	0.8381214	0.7500755	1.069553	0.9174312	0.9168849	1.042141	1.056673	0.9592373	0.997288	0.9928628	1.056673	0.9592373
Phase-1 RCT-146	0.8994604	0.9823846	0.9932351	0.7160226	0.583431	0.8087221	0.9935265	1.0985767	1.008534	0.9148602	1.1100153	1.1321158	0.9664224	1.008534	0.9148602
Gamma-actin, cytoplasmic	0.873888	0.9208156	0.6508007	0.9543847	1.0900416	0.9570841	1.1188185	1.0087211	0.9177746	0.8829677	0.9507126	0.8547366	1.0866205	0.9177746	0.8829677
Adenine nucleotide translocator 1	0.9085509	0.7560513	1.1688199	0.8392341	1.1452223	0.980035	1.0734262	0.7602497	0.9053068	1.0871047	0.9653234	0.8601927	0.9797443	0.9053068	0.9053068
Thymosin beta-10	1.0258489	0.8657708	0.6551985	1.110147	1.4052982	0.154701	1.2575134	1.1644214	0.8524621	1.7025421	0.9718541	1.0608912	1.3050677	0.8524621	0.8524621
Insulin-like growth factor I, exon 6	1.0919808	1.5580198	0.7266054	1.350137	1.1882974	1.4938877	0.8907163	1.1524009	0.8497729	0.6310394	1.0581223	1.016287	0.8826754	0.8497729	0.8497729
Phase-1 RCT-78	0.9152142	0.9973647	0.8269464	1.144422	1.0361567	1.0926943	0.8570016	0.9427422	1.1528996	1.1179467	0.9762253	0.8815819	0.8838849	1.1179467	1.1179467
Alpha-2-microglobulin	0.9917681	0.2989539	1.0007262	1.0279642	1.394355	1.1970104	0.5680637	0.3772149	0.9657357	1.1425353	0.9413459	0.3815329	1.3331392	0.9413459	0.3815329
High affinity IgG receptor gamma chain (FcR(gamma))	0.8734845	0.8896277	0.9763959	0.8659391	0.8138246	0.906005	1.0431533	1.2187135	0.9807501	0.8055319	0.8812372	0.9411922	0.8054327	0.9807501	0.8055319
60S ribosomal protein L6	1.0145407	0.8728239	0.8314827	0.9593333	1.0840175	0.9726762	1.2178493	1.1981192	0.890112	1.0984703	0.9352627	1.0070952	1.0975139	0.9352627	0.9352627
IgE binding protein	0.8796755	1.0254151	1.0188848	1.0240648	0.809337	0.950459	1.0058296	1.3736777	1.0521382	1.0393801	0.8919637	0.9135652	1.0961411	1.0521382	1.0393801
Phase-1 RCT-149	1.0732262	1.0663087	1.1993468	1.155819	0.9939852	1.3293812	1.0107495	1.1285751	1.1369904	1.1369904	1.1369904	1.1369904	1.1369904	1.1369904	1.1369904
Cytochrome P450 2C11	0.7113605	0.4146271	1.0875299	0.9030185	0.6965876	0.9798612	0.9443588	1.1869307	1.1749051	1.2747784	1.1837368	1.2080069	1.1388362	1.1749051	1.1749051
Uncoupling protein 2	0.8637664	1.0205239	0.7241208	0.7818076	1.0664377	1.0237813	1.2744315	1.451889	0.8754012	1.0968854	0.9301615	1.2298707	1.0899016	0.8754012	0.8754012
Cofilin	1.0073184	0.8938242	0.9355767	1.0193903	1.0828006	0.9469704	1.143015	0.8164281	1.0590024	1.0057212	1.0235351	0.8288966	0.9999152	1.0590024	1.0590024
Alpha-tubulin	1.1977708	0.7655994	0.8188624	0.6907163	1.0392317	1.0518792	1.2151084	0.9929797	0.82721	1.2509701	0.9313134	0.9883693	1.092825	1.0518792	1.0518792
Sleady-CoA desaturase, liver	0.3741523	0.1131924	0.0532778	2.0310347	2.3052778	2.7010753	3.4864995	0.5262004	1.581012	0.8285291	1.3273739	0.9754015	0.5498952	1.3273739	1.3273739
Glutathione S-transferase theta-1	1.063044	0.5751815	0.742129	1.0194448	1.2877849	1.3139528	1.1410908	0.8808028	0.9901292	0.9290785	0.9900611	1.148068	0.8885713	0.9901292	0.9901292
alpha-1,2-fucosyltransferase	1.2128539	0.748928	0.5304248	1.073184	1.4961586	1.3676933	1.5666662	1.5931386	0.8941929	0.8706939	0.9929878	1.4794458	0.7595549	1.3676933	1.3676933
Phase-1 RCT-138	0.817102	1.0895128	1.0611228	0.9874259	0.8910596	0.9243786	1.0114303	1.184448	0.918156	0.9394667	0.8619252	1.0218083	0.8606784	0.9394667	0.9394667
Phase-1 RCT-285	1.1723812	0.8065118	0.8776364	1.172515	1.1763374	1.1192122	1.2327882	1.0904815	1.0470687	1.1357812	0.9502921	0.9222117	1.0473233	1.1357812	1.1357812
Phase-1 RCT-164	1.4428737	0.8737696	0.9270603	0.7093401	0.8881891	0.9641743	1.1343135	0.9583131	0.8597189	0.7258435	0.9494314	0.9506984	0.7202805	0.9583131	0.9583131
Alpha-2-macroglobulin, sequence 2	0.9484806	1.095003	1.1934747	1.1219518	1.0011367	0.8369481	0.9253401	0.9382026	0.8487825	1.0689446	0.9789331	0.9017154	0.9594566	1.0689446	1.0689446
Blivardin reductase	0.881697	0.9203205	1.000472	1.0003603	0.6820081	1.0336281	1.0176303	1.1471075	2.2456784	1.0223019	0.9029191	0.8022444	1.0610038	1.0336281	1.0336281
Phase-1 RCT-121	1.0228134	1.2448784	0.9381557	0.6716245	0.7379192	0.9220102	1.0875999	1.0572119	0.864018	0.9207063	0.9029191	0.8022444	1.0610038	1.0875999	1.0875999
Dynamin-1 (D100)	0.9805073	0.8392251	0.9018847	1.039085	0.970882	1.0305948	0.9062102	0.7628707	1.0173571	1.0940012	0.808018	0.84281	0.9644233	1.039085	1.039085
Phase-1 RCT-192	1.0414662	1.0857983	1.016004	1.0025288	0.9280422	0.9984779	1.0606666	1.0427132	1.0145066	0.9854716	0.9729747	0.9462553	0.8946574	1.0145066	1.0145066
Fatty acid synthase	1.814455	0.8404005	0.4287907	1.1571031	1.0082945	1.4467834	2.0115762	0.4124102	0.8593862	2.104933	0.8511291	0.6867376	1.2813133	2.0115762	2.0115762
Phase-1 RCT-211	1.216077	1.000599	0.9325882	1.3868315	0.9398359	1.3432729	1.0268143	1.4195893	1.0325742	1.1168119	1.05318	1.187761	0.9609213	1.0325742	1.0325742
Ribosomal protein S9	1.018121	0.7541112	0.9990661	0.9814152	1.2308806	1.0536163	0.9790087	1.0866119	0.9403741	1.016157	0.86572	1.0812929	0.897826	1.0536163	1.0536163
NADP-dependent isocitrate dehydrogenase, cytosolic	1.0510317	0.9898023	1.0620543	1.0949202	1.0282528	1.1829741	1.0077947	0.7331684	0.8853303	1.0515355	0.8853303	1.0515355	0.7427957	1.0515355	1.0515355
Phase-1 RCT-57	1	0.9493192	1.0188458	0.6933543	0.9164693	0.9776433	0.9533539	0.9332674	1.3676645	1.063611	0.8695571	0.9437738	1.0281683	1.063611	1.063611
Phase-1 RCT-38	0.9782172	0.8636289	0.7841331	1.0367752	0.8182085	1.1903628	1.0321101	1.2800962	1.040352	1.0317155	0.9968174	1.1437129	1.2106204	1.0317155	1.0317155
Apolipoprotein AII	0.9780538	0.881643	0.8840884	1.2929928	1.360234	1.2929928	1.2088233	1.1408312	0.7857571	0.4198115	0.8030411	1.6144732	1.4811368	1.2929928	1.2929928
Phase-1 RCT-68	1.0344716	1.0300975	1.044085	1.068036	0.8848832	1.0196689	0.8715596	1.0134813	1.1839001	1.227586	1.0449538	0.9710295	1.4811368	1.0449538	1.0449538

Multidrug resistant protein-2	1.023925	1.128672	1.3552814	1.1465071	1.1947309	1.0720819	1.0207369	1.3565736	1.1356161	1.1807235	1.2142371	1.1471981	1.3725097
Phase-1 RCT-39	1.0074171	1.125346	0.8162031	0.964907	0.9726074	1	1.0595512	1.4895387	0.8476628	0.9167696	1.0717045	1.0650585	0.9074565
NIPK	1.0490206	1.292463	0.8721133	0.9765518	0.8441107	1.1775259	0.9242439	1.1440465	0.9259609	0.886666	1.1425567	1.0498401	0.7727542
F1-A1Phase beta subunit	0.9746374	0.778728	0.8687776	1.2498817	1.5791855	0.9205267	1.0639933	0.7662715	0.9797249	1.5758704	1.0321867	0.8806374	1.2360371
Elongation factor-1 alpha	1.1355962	1.060538	0.9263971	1.0585471	1.3617821	0.9093326	0.8378938	1.0092345	0.8811947	1.1798876	1.0185589	0.7764618	1.1446123
Phase-1 RCT-24	1.2347034	0.830559	0.892236	0.8441142	0.9002981	1.1313708	1.2823185	1.0934291	0.8590055	1.4172795	0.9330911	1.0175707	1.3064494
Beta-tubulin, class I	1.1814804	0.653866	0.8979602	0.9271002	0.8924828	1.1768804	1.0840712	0.8472833	0.8776367	1.5585313	0.9808763	0.7209882	1.1507015
14-3-3 zeta	1.2411304	0.823343	0.7916378	0.8631851	0.7933494	1.0484487	1.2491547	1.0916127	0.9840366	1.0651488	1.09253	1.0034224	1.2006808
Alpha-prothymosin	1.0818585	0.645363	0.6203782	0.8020533	1.1567007	0.868437	1.1662757	0.8248938	1.1969184	1.2513101	1.125395	0.7791795	1.2006808
Phase-1 RCT-58	1.0347291	0.7077635	0.9663615	0.9675276	1.2806519	1.3103536	1.7933968	1.3390439	0.7817764	0.4487111	0.91712	0.9510657	0.7584435
Phase-1 RCT-290	0.9095313	0.863413	0.9474051	0.7335664	1.5008878	1.4937136	1.1815886	0.5071215	1.8421942	2.542163	1.230475	0.873233	1.2550104
Transitional endoplasmic reticulum ATPase	0.6873617	0.7077635	0.8375409	1.4558903	0.858183	0.9798644	0.919471	0.8053101	0.9347181	0.9991449	0.9905506	0.865678	1.0197228
Beta-actin	1.3811171	0.9341973	0.8598597	1.2005306	1.0549438	0.8969235	0.9976049	1.1260333	0.8731179	0.8649273	0.980727	0.8719199	1.3548365
Thioredoxin-1 (Trx1)	0.9618254	0.9812252	1.0338815	1.0651221	0.9226402	1.0249723	1.2742435	1.235957	0.8300766	0.8513024	0.8479886	1.0100908	0.6659823
Phase-1 RCT-174	0.9353867	0.9794247	0.7878183	0.9061514	1.1042447	0.9861549	1.267696	1.3644415	1.0242897	0.9435248	0.9691865	1.1149783	1.0069482
Beta-actin, sequence 2	1.009516	0.794247	0.7878183	0.9061514	1.1042447	0.9861549	1.267696	1.3644415	1.0242897	0.9435248	0.9691865	1.1149783	1.0069482
Phase-1 RCT-109	1.1131849	1.038586	0.707365	1.2158397	1.1518681	1.1532438	1.2002677	1.4095066	0.992094	0.0570976	0.9463394	1.1298595	1.0810713
Phase-1 RCT-154	1.0445738	0.8495645	0.9701576	0.6734484	0.5731989	1.0326418	1	1.0825689	1.0178943	1.0380309	1.0440187	1.0355182	1.0738246
Hypoxanthine-guanine phosphoribosyltransferase	0.91893561	0.772777	0.8641161	1.0449746	1.3378214	1.2211837	1.2689891	0.822448	1.0078133	1.3325127	0.9160264	1.0284543	1.2086903
Phase-1 RCT-213	1.0244302	0.9272488	0.8807898	0.6772608	0.8031378	0.9690344	1.0253936	0.9045925	1.1077468	1.1067025	1.0422751	0.9869179	1.0743072
Phase-1 RCT-280	0.9280028	1.1386956	1.029492	0.7607472	0.7471709	0.8392023	0.8231553	1.273741	1.0030396	0.9100332	1.085892	0.9434566	0.8180227
Phase-1 RCT-12	1.1386274	1.0071388	1.0244878	0.8444428	0.8707415	1.1369476	1.0085766	1.0480716	0.8706869	1.2359688	0.9685682	0.9357342	1.1762588
Phase-1 RCT-293	0.8912653	0.9368975	0.9429922	0.8194093	0.8116044	0.9999101	1.0475659	1.2823626	0.8061689	0.7482792	0.961253	1.2086823	0.7504225
Ribosomal protein S8	0.9950952	0.884613	0.9054608	1.1456726	1.3415077	1.0083742	0.96948	1.0990369	0.9089149	1.1514633	0.8711389	0.8717637	0.7852554
Pyruvate kinase, muscle	0.9707277	1.0191628	0.80258	1.0857997	0.9753692	1.2618954	0.8947152	1.3422287	0.9467503	1.2388217	1.138034	1.1754122	1.3292556
Nucleoside diphosphate kinase isoform	0.9788076	0.8819379	0.9894283	1.1866274	1.212056	1.2684285	0.9050020	0.9174748	1.0879633	1.1544698	1.1175275	1.00193	0.9575254
p55CDC	0.9412105	1.0592881	0.8494747	1.052323	1.0092847	1.2670665	0.9050020	0.9174748	1.0879633	1.1544698	1.1175275	1.00193	0.9575254
Phase-1 RCT-156	1.1653254	1.8257818	1.0078518	1.1461648	1.3571694	1.2326924	1.0604557	1.0469296	0.9736348	0.9278439	0.9113069	0.8932748	1.0348014
Ribosomal protein L13A	1.2496666	0.832107	0.6488808	1.3539586	0.6279708	0.767857	0.9154108	1.0304639	0.899464	1.0142124	0.981634	0.942165	1.1658009
Phase-1 RCT-258	1.193389	1.2277659	0.746145	1.0465671	1.523598	1.1217859	0.7659172	0.9400944	0.8881954	0.7300319	0.8803169	0.6950997	0.8006146
Insulin-like growth factor I	1.078686	0.3558989	1.6162839	1.347688	2.7913547	1.2340016	1.3461218	0.8477613	0.8937422	0.9561638	0.8803169	0.6950997	0.8006146
Cytochrome P450 3A1	1.098825	0.9357151	0.8371645	1.2152544	1.3048285	1.0806589	1.1568438	1.2227389	1.0467294	1.5725638	0.9921544	0.9393421	1.3305948
(Ribosomal protein L6)	1.0059855	0.9296507	0.8878256	0.7682027	0.9640565	0.9413177	1.2675036	1.2486745	0.884895	1.1052897	0.8601493	1.0266716	0.9700314
Organic cation transporter 3	0.9489632	0.937706	0.9320765	0.9688566	0.7580769	1.0118699	0.9642552	1.0484521	1.0818881	1.2752059	1.0300834	1.0274218	1.1811955
Calpain 2	0.5487708	0.6868162	0.5792038	0.7270358	1.0664263	1.0339699	0.7432152	0.6260704	0.8180284	0.5548869	0.9307394	0.5838417	0.6843917
Phase-1 RCT-102													
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.974465	0.7821439	1.2519871	0.9247308	1.2048652	1.0919219	0.7761172	0.8107553	0.8533841	0.5458135	0.8688201	0.7949209	0.5156249
Phase-1 RCT-227	0.8544015	0.7557513	0.8849203	1.0482994	1.0697882	1.0422155	0.6970777	0.8148055	1.2162271	1.1552309	0.9487746	0.7082246	0.9308952
N-hydroxy-2-acetylaminofluorene sulfoxidase (STC1)	0.9813643	0.6150082	1.2647359	0.906577	1.5293059	1.25796	0.7494679	0.7888989	0.8299382	0.4888163	0.82139	0.7470667	0.4959706
Cathepsin S	1.0460138	1.0217098	1.1510904	1.1107189	0.7670533	0.9894539	1.0458715	1.5310528	0.7800346	0.7945166	0.7615979	1.141958	0.7020938
Apolipoprotein CIII	0.9783264	0.6933701	0.9371511	0.7255827	1.2029722	1.2805206	0.7653958	1.0372055	1.0454913	0.996011	0.8603638	1.0357948	0.7122763
Cytochrome P450 2A3	1.0083761	0.6867659	1.8903931	1.8538587	0.8758176	0.8626084	0.8671259	0.4314712	0.785422	0.809916	1.1106101	0.9831398	0.7122763
Cytochrome P450 2C23	1.0574307	1.1282346	1.1465852	1.2303436	1.0905607	0.8877144	0.923473	0.7918571	0.8382943	0.3326177	0.8877043	0.9880203	0.6046573
Apolipoprotein C1	0.9407036	0.9262682	1.0739247	1.105621	0.9861431	0.8573749	0.8767195	0.6618801	1.0103762	0.6651555	0.8988188	0.7098429	0.6869399
Betaine homocysteine methyltransferase (BHMT)	0.4789906	0.4800263	0.7332347	2.0977316	2.4765844	1.7445312	1.4458791	0.3672821	1.8711014	3.0408347	1.2547274	0.6143343	1.2194722
Paraoxonase 1	1.032124	1.0188824	1.4662071	1.0827893	1.1573356	0.8559121	0.733053	0.768317	0.7816931	0.6068233	0.8613967	0.8205603	0.6017889
Phase-1 RCT-207	1.0504447	0.9634326	0.8151385	0.5904763	0.7807096	0.9001995	1.0414084	0.9298006	1.1291574	1.1841188	1.057494	0.9904528	1.1036496
Cathepsin B	0.8937037	0.8217963	0.8442974	1.2210201	1.2681804	1.0098583	1.0121799	1.1136122	1.0456587	0.937949	1.0225977	1.1312588	1.1296322
Phase-1 RCT-144	0.969208	0.9797341	0.8137831	0.9614666	1.012751	1.0060649	0.9493954	0.9834786	0.9979191	0.9537398	1.0227901	1.0285193	

Alpha-1 microglobulin/bikunin precursor (Ambp)	1.0172981	0.5992527	0.8085849	1.1228434	1.3022913	1.0783532	0.956855	0.873772	0.9371322	0.9545603	0.8901222	0.795792	0.8863753
Cyclin D1	1.4106609	0.8933275	1.389862	0.8774915	0.6370017	0.9652214	1.3900472	0.907176	0.7401671	1.0217454	0.8874148	0.9812383	0.857885
Presenilin-1	0.6992565	0.8827213	0.7827065	1.1165687	1.0307845	1.2780199	0.8606846	1.1319015	0.9984041	0.4931508	0.7001473	0.9678403	0.4451235
Protein tyrosine phosphatase, receptor type, D	1.3513751	1.0255619	1.117192	1.1322542	1.2261975	0.8452783	0.6228598	0.7038342	1.0203683	0.5873286	1.0028922	0.8813473	0.6826239
Multidrug resistant protein-1	1.0899143	0.9488519	1.3979633	1.3041042	1.1866733	1.2865623	1	1.2680602	1.3118036	1.257452	1.4359819	1.1089159	1.6939944
Cathepsin L, sequence 2	1.2703198	1.5405949	1.3184531	1.2043025	1.029462	0.8748466	0.7826378	1.3612336	0.9605257	1.1354592	1.0420544	1.0214374	1.2092525
JNK1 stress activated protein kinase	1.18076	1.0832772	1.3568513	1.2980233	1.2216706	0.7917833	0.8528688	0.5181539	0.8379765	2.2034755	1.1268044	0.8660655	1.9482772
Phase-1 RCT-43	1.0853279	1.4133632	0.9445146	0.7758622	1.117692	1.056887	1.1519431	0.9987548	0.940602	0.9607548	0.8617249	0.9066359	0.9051095
Tissue plasminogen activator	0.8917441	0.8347132	0.905597	0.8676603	0.7834409	0.8610902	0.7284761	1.0097779	1.3477398	1.0354437	1.0102112	0.7897062	1.5838435
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.1445509	0.8334487	1.0203898	0.9655548	1.3145353	1.1129712	1.0816588	1.0739564	0.8605588	1.0887701	0.899923	0.9341322	0.9279894
Phase-1 RCT-173	1.0492277	0.7612544	0.8040261	0.6118906	0.7962228	0.8811472	1.1721451	0.8481727	1.1465967	1.3401563	1.0833035	0.9636456	1.0311909
Omitline decarboxylase	1.1500596	0.9486613	1.1029445	0.7412745	1.1134979	1.3329836	0.8564838	1.381269	1.08185	1.2241372	0.9493741	1.2058322	1.2058322
Zinc finger protein	0.983519	1.0812854	1.1095513	0.6482025	0.8435676	0.8352441	0.887145	0.9247244	1.0007237	0.9289436	0.9699408	0.8498478	0.9122886
CDK108	0.8581975	0.7188312	0.8886774	0.9259129	0.8490878	0.8708504	0.8018494	0.8645644	1.209934	1.0813909	1.1745211	0.9150673	1.0304205
Phase-1 RCT-117	0.9316769	0.9098469	1.3896629	0.8876585	1.3754059	1.4253284	1.2117736	1.183846	0.5893585	0.6128073	0.8066956	0.9617502	0.8728184
(Phase-1 RCT 88)	0.8899492	1.040548	0.9469302	1.0791463	0.8890688	1.0413487	0.8809245	1.12413	1.251388	1.0184328	0.9512967	0.9442074	1.7796776
Aquaporin-3 (AQP3)	0.9842802	0.9481025	0.9807515	0.8447436	0.6627092	0.927202	0.8128711	0.8562856	1.12413	1.251388	1.0184328	0.9512967	0.9442074
Cholesterol esterase	0.9277684	0.5630213	1.1673232	1.0481422	1.055823	0.7367486	0.8476893	0.4667917	0.6425217	0.6432579	0.8417885	0.6185527	0.5353763
Ribosomal protein S17	1.0338591	1.0603846	0.9413181	0.9958784	1.1306316	0.8374724	0.8872283	1.0195711	1.0240529	1.1324502	0.9665769	0.7829655	0.8921167
Poly(ADP-ribose) polymerase	0.9396639	0.8855109	1.069643	0.8368996	0.8770677	1.100284	1.1113693	0.9447051	1.0362776	1.2817653	0.9562513	1.0369085	1.1766635
Annexin V	1.2057784	1.0498079	1.0097718	0.8820123	0.8453419	1.031034	0.9638959	0.8928967	0.8631725	0.8389845	0.9178046	1.1249336	0.9352757
Phase-1 RCT-33	0.9036369	0.7825428	0.5991853	1.3823099	1.0233452	1.3413688	1.3698198	1.3924003	1.0186495	1.0478865	0.9930534	1.1889304	1.1979105
Phase-1 RCT-61	0.9560433	1.0139822	0.9006832	0.6545223	0.7237802	0.9715466	1.1931238	1.1097097	0.9120211	0.5451261	0.9437482	1.0297428	0.8543657
Retinol dehydrogenase type III	1.3836842	0.6953986	0.7914044	1.0525593	1.5081438	1.0837955	1.263725	1.1076088	0.8553115	0.9651327	0.9875113	0.8473548	0.7478024
ATPase inhibitor (rat mitochondrial IF1 protein)	0.882874	0.8577039	0.9897327	0.9544224	1.2323565	0.9308765	0.901565	0.7156372	0.8013049	0.5192791	0.8298686	0.5881522	0.6549287
Thymidylate synthase	1.0768179	1.205926	1.1415595	0.8543173	0.6681171	0.8665898	0.9000392	0.8606147	1.2263026	0.8806017	0.82043	1.0895989	0.7843533
Interleukin-18	0.9442239	1.1314511	1.035966	0.7316818	0.5774862	0.839245	1.0816627	1.0063198	0.9260005	1.121985	0.973628	1.067767	0.9766008
Lecithin:cholesterol acyltransferase	1.1643548	0.8942171	0.9654762	1.1536632	1.2160217	1.100295	1.2820234	1.2180678	1.1115756	1.2543334	1.0068926	1.0189469	1.2700537
Contraptin-like protease inhibitor (CPI-21)	1.0849211	0.8397445	0.835081	1.003396	0.9659822	0.8203927	0.525546	0.9583862	1.4135526	1.0203757	1.0682054	0.8108701	1.8777237
Proliferating cell nuclear antigen gene	0.8773213	0.9599047	1.0002953	0.8131774	0.5755484	0.8527367	1.0411046	1.0241978	0.9754208	1.0367689	0.9920989	1.1028612	0.985596
Phase-1 RCT-230	0.8576123	1.1517332	0.8866813	0.7029139	0.6293154	0.801657	0.9087213	1.2686104	1.0030453	1.0009565	1.1922292	1.086387	0.9334081
Cytochrome P450 2D18	1.1499196	0.9433174	1.024144	1.1745298	1.0357163	1.1005872	1.0345931	0.9770908	1.3896873	1.147087	1.0238819	0.9431716	1.2109227
Phase-1 RCT-48	0.9492693	0.8780756	0.9292712	1.0744971	1.215841	1.4190494	1.0154947	0.7833505	1.0926317	0.8444762	1.079283	0.8117194	0.8433018
Phase-1 RCT-292	0.8838115	1.1092736	1.0092523	0.8476971	0.8708079	0.9545222	0.9684958	0.9395645	1.096095	1.0346955	1.0258346	1.0116643	0.8749667
Argininosuccinate synthetase 1	1.2223109	0.8240839	1.258158	1.8455293	1.7107819	1.2971047	1.0130588	0.4934185	1.0595526	1.941308	1.0978912	0.8578392	1.5917776
C-reactive protein	1.6339247	0.9810287	1.4572169	1.0421163	1.2921678	0.8876142	0.6068611	0.7732859	0.9729796	0.5971896	0.9843968	0.6559684	0.7188557
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint																	
		(1)															
Compound-Dose		DEX 30	DEX 8	DIF 25	DIF 25	DIF 25	DIF 25	DIF 100	DIF 100	DIF 100	DMN 20	DMN 20	DMN 20	DMN 20	DOX 12	DOX 12	
Animal Number	1358	1349	247	248	249	257	258	259	1757	1758	1759	1257	1258				
Liver Toxicity Necrosis Classification	no	no	no	no	no	no	no	no	no	yes	yes	no	no				
Gene Name	no	no	no	no	no	no	no	no	no	yes	yes	no	no				
Osteocalcin	1.1418818	1.0302615	0.9134798	1.0858576	0.8827833	0.9802117	1.0788586	1.0058699	9.442778	3.1861467	7.710055	1.5318965	1.248942				
Statmin	1.0661529	0.9960029	1.0041112	1.0256697	0.9348507	0.9613327	0.9391595	1.0984112	2.837953	2.028919	2.1916366	0.929551	0.9168068				
Calpain I heavy chain	1.2282361	1.0574887	1.0828649	1.0761751	1.3592842	1.2440219	1.3437343	1.2781343	5.946344	2.4033005	3.843169	1.364826	0.9719276				
Phase-1 RCT-179	0.9421471	0.9005984	0.8029198	0.9245838	0.8659027	0.8777321	0.9043346	0.8715377	2.1172245	1.5652333	2.23797	0.9353874	0.8958505				
Phase-1 RCT-107	0.9609987	0.9748602	0.9732336	1.1315227	1.2942916	1.4735761	1.0875403	0.9914919	0.9711943	0.8233318	0.8040169	0.712991	0.8608753				
Heme oxygenase	1.0959599	1.3497748	0.9250774	1.0467008	1.036567	1.0112636	1.2160974	1.0824268	4.685683	2.2985709	5.313715	1.3472687	1.3593642				
Collagen type II	0.9814044	1.0324546	1.6223946	0.9999999	1.1653004	1.5549595	1.3487002	1.1746676	2.1576884	1.204181	2.112728	0.8093249	0.8740208				
Phase-1 RCT-81	1.0460094	1.0537293	1.026234	1.1672418	1.0734495	1.2549835	1.2211881	1.3015985	0.8012751	0.8665455	0.7177912	1.0200853	0.9719168				
Glycine methyltransferase	1.0052238	0.9429279	1.069029	1.1482091	1.3459789	1.4983052	1.174554	1.0293223	0.3017397	0.593106	0.3782954	0.6562265	0.8427153				
Cystatin C	0.9245112	0.8758853	0.8605542	1.0492852	0.9627404	0.9974733	0.9412975	1.0890917	1.4454843	1.1321563	1.7174932	0.7241628	0.8517085				
Melanoma-associated antigen ME491	1.1281337	1.1246439	0.8820722	1.117912	1.0863479	1.0479196	1.1855794	1.0946976	3.0472207	1.9482024	3.3786554	1.0031643	0.987742				
Phase-1 RCT-146	1.1122883	1.0494133	1.2343392	1.2217687	1.0031971	0.9142811	1.0602461	1.0579295	2.4925826	1.5479223	1.9992155	1.0407066	0.9806917				
Gamma-actin, cytoplasmic	0.9446226	0.9548147	1.4194037	1.0494705	1.0862042	1.0007329	0.8897873	0.9544881	2.5131214	1.7987823	2.5319722	1.0071651	0.9862333				
Adenine nucleotide translocator 1	1.0566977	0.9343108	0.8094848	1.0537848	1.141217	0.9594677	1.117301	0.9927541	1.0585098	0.9469777	1.0003195	0.9232867	0.5935973				
Thymosin beta-10	0.8097717	0.8271438	0.7918813	0.7825609	0.8647845	0.8018026	0.7772115	0.4078531	4.5365753	1.0886648	1.0829667	0.9376362	0.9376362				
Insulin-like growth factor I, exon 6	0.7500891	0.9396342	0.7363164	0.7960733	0.5595143	0.6983735	0.6395076	0.6711259	0.2770893	0.4514781	0.3439581	0.8867304	0.5121124				
Phase-1 RCT-78	1.2335231	1.0785503	1.0323254	0.916931	1.030719	1.0162021	1.1842184	1.0224321	0.5740823	0.7338466	0.5944242	0.8899378	0.8642922				
Alpha-2-microglobulin	0.8450784	0.7266874	0.6084669	0.61351	0.7378305	0.7121453	0.6199378	0.5800234	0.0376963	0.0624851	0.0280375	0.1896285	0.1902864				
High affinity IgE receptor gamma chain (FcER1gamma)	1.0533477	0.999752	0.7705677	1.2024305	1.0948018	1.1929986	1.0814949	0.8977481	2.876352	1.5395492	3.1394496	0.8615171	0.84347				
60S ribosomal protein L6	0.8908617	1.0054346	0.7870476	0.8367858	0.9330581	1.0072525	1.0095357	1.0095357	1.84379	1.4363431	1.828529	1.4546772	1.2492562				
IgE binding protein	0.9631939	0.9747619	0.8528187	1.0853467	0.9732043	0.9751036	1.0570742	1.1290866	6.547444	2.1396867	3.843169	1.2139687	0.9082446				
Phase-1 RCT-149	1.1466368	1.1034437	1.559252	1.2775365	1.1369218	1.1961715	1.2918023	1.1176883	0.8357205	0.7932243	0.8226692	0.8550182	0.6937632				
Cytochrome P450 2C11	1.3866265	1.2848478	1.0240912	0.8368794	1.2396117	0.9675527	1.0590408	0.9888295	0.0728319	0.2163871	0.1319173	1.4688259	1.6012837				
Uncoupling protein 2	0.763873	0.895098	0.9593027	0.7782972	0.9003245	0.7752812	0.7434528	0.7604131	4.83376	2.4350781	5.763337	1.0645705	0.866826				
Cofilin	1.1241914	0.8360431	1.1914866	1.3158139	1.0798108	1.2713027	1.4095652	1.589044	2.2259853	1.5292068	2.1952417	0.8186942	0.8260877				
Alpha-tubulin	0.8597909	1.0029331	1.143198	0.965915	1.249235	0.9727722	1.0027493	0.9614276	3.5484726	3.055657	3.4715638	0.8888472	0.890706				
Stearyl-CoA desaturase, liver	1.8186162	1.2851758	1.2354568	1.0439006	1.7769661	1.026311	1.9728469	1.1621497	0.0598846	0.2231559	0.0524004	0.0899733	0.0888258				
Glutathione S-transferase Theta-1	0.9801158	1.058234	0.7954495	0.9714393	1.0443287	0.886818	0.8814598	0.9199781	2.0666187	1.1189882	0.7926948	0.6492104	0.6492104				
alpha-1,2-fucosyltransferase	0.7038544	0.9427272	0.5083948	0.4796748	0.5238005	0.4771789	0.4936164	0.4941276	0.7317838	1.0423495	0.8160039	1.0172954	1.036631				
Phase-1 RCT-138	0.9797315	0.8553008	0.9235792	1.1097068	0.9776304	1.1067604	0.9306929	1.0644039	2.4232948	1.4247289	2.6452522	0.8573463	0.8116245				
Phase-1 RCT-164	1.1205373	1.0548445	0.8472527	1.0042217	1.0680013	0.9619931	1.0068129	1.0835729	2.2485178	2.0333373	2.2102814	1	1.1126183				
Phase-1 RCT-295	0.7897846	0.8081454	1.0012428	0.941135	0.8712708	0.9787451	0.9365926	0.9022983	0.6127968	0.7069434	0.7253819	0.7667261	0.8091663				
Alpha-2-macroglobulin, sequence 2	0.9011146	0.9160372	0.9260933	0.810606	0.8463639	0.8689934	0.8773953	0.946254	0.9629874	0.7221739	0.7685536	0.9097117	0.087972				
Biliverdin reductase	1.1707364	1.155549	1.343723	1.283358	1.445571	1.2528286	1.5179645	1.5595368	2.2413964	1.7901897	2.533243	1.0937098	0.8614681				
Phase-1 RCT-121	0.8864883	0.892643	1.1409723	0.862186	0.7902649	0.9170046	0.856728	0.9003083	3.2825465	1.8550783	3.9615777	1.0192453	0.7505483				
Dynamin-1 (D100)	1.0707159	1.0014137	0.843387	0.9072521	0.8653567	1.0184603	0.958382	0.9438933	0.8325777	0.9330828	0.7416195	0.8493086	1.082881				
Phase-1 RCT-192	0.9956306	0.9679415	0.9512172	1.0530702	0.9720149	0.9708038	1.0793461	1.0315737	1.8207209	1.5489115	1.9036267	1.4109632	1.0575992				
Fatty acid synthase	1.1650151	0.9941424	2.0251634	0.9908375	2.2287927	0.8015297	1.0707119	0.8117361	0.2562818	0.4656609	0.2802864	0.3906801	0.5782939				
Phase-1 RCT-211	1.0525991	1.0598957	0.7391959	0.8506943	0.916015	0.8257856	0.8609575	0.8807131	2.4721289	1.7273381	2.2252955	1.3508508	1.4771662				
Ribosomal protein S9	1.0156658	0.9444869	0.982283	1.014389	1.0319083	0.8403275	0.9612945	0.8873944	1.7730641	1.5195584	1.9823402	1.1237856	1.0751594				
NADP-dependent isocitrate dehydrogenase, cytosolic	0.9358992	0.9319758	0.9684701	1.1348742	1.0175914	0.9694332	1.0473881	1.0590954	0.6403322	0.7668673	0.6147912	0.8754022	0.7418122				
Phase-1 RCT-57	1.1405127	1.0025879	1.2658811	1.1222717	1.1415013	1.1334682	1.0362988	0.9737021	0.7893702	0.8898371	0.7807677	0.8278986	0.6260895				
Phase-1 RCT-36	1.0878614	1.0563667	1.0544852	0.899322	0.919361	0.811471	0.9034221	0.8647528	0.689831	0.9334308	0.706374	0.8021428	0.8281738				
Apolipoprotein AII	0.727478	0.788008	0.72355	0.5419063	0.8558432	0.7411756	0.6242764	0.6406018	0.0861621	0.2828916	0.1111	0.8750536	1.7096019				
Phase-1 RCT-68	1.3278276	1.0870974	1.0274911	1.0269733	1.1829813	1.073877	1.1247232	1.2160428	2.2199702	1.5093691	1.8856231	1.088592	1.1477123				

Multidrug resistant protein-2	1.0546961	1.1345975	1.1036971	1.092324	1.1124306	1.0686144	1.0266072	1.0464841	4.971005	4.7017784	3.5781097	3.0060558	3.1137574
Phase-1 RCT-39	0.9103508	0.9732538	0.8735986	1.1105481	0.9938413	0.8827903	0.9560428	0.8234463	1.9191295	1.8053133	2.2042093	0.9841842	1.6399776
NIPK	0.8366451	1.0332506	1.0112019	0.8298402	0.5991254	0.6888778	0.683653	0.6979899	0.7350007	0.7254615	0.7435045	0.8367524	0.820382
F1-ATPase beta subunit	0.9181134	0.9768769	0.8209402	1.0598853	0.9445921	0.9617007	0.9180906	0.8694347	0.8694347	1.0896698	0.859555	0.6794438	0.858371
Elongation factor-1 alpha	0.8564375	1.107513	0.9868803	0.9453154	0.9355704	1.1731606	1.0707573	1.0046446	1.2073715	1.1456523	1.3283709	1.214006	1.0436596
Phase-1 RCT-24	0.9715312	1.0692143	1.3596183	1.0453048	1.435908	1.1495568	1.1355737	1.178115	2.949472	2.8701186	2.830043	0.8846496	1.0138435
Beta-tubulin, class I	0.962209	0.9051355	1.8600973	1.1472635	1.3523692	1.124271	1.274879	1.312794	3.7684325	2.8398497	2.6551533	0.8888743	0.6277708
Alpha-prothymosin	1.0543782	1.1293201	1.1384587	1.0642174	1.0845398	1.0970657	1.0479724	0.9987618	3.0135387	2.5437968	3.075995	1.229850	1.1600542
Phase-1 RCT-58	1.182549	0.9512425	1.1248077	1.4742233	1.2131952	1.4826673	1.4080604	1.8258806	1.8180568	1.4252074	2.0055177	0.7175884	0.8772195
Phase-1 RCT-290	0.9371041	0.8434526	0.9042399	0.8092844	0.6154229	0.8314195	0.524332	0.8627407	1.3468259	1.8504773	1.7380502	2.3486421	1.9247121
Transitional endoplasmic reticulum ATPase	0.9874164	1.0121182	1.2303447	0.9720562	1.1689459	0.9789308	1.026688	0.9472297	0.8872732	0.9487317	0.8605495	0.9047477	0.737032
Beta-actin	0.8511382	1.063662	1.1371608	0.942909	1.0125045	0.70148535	0.8092048	0.9222884	1.4912696	1.473163	1.0310768	0.916866	1.0984569
Thioredoxin-1 (Trx1)	0.8208509	0.861599	0.5854623	0.8084102	0.7185597	0.7637681	0.6707681	0.7632177	0.9891404	1.168877	1.081048	0.916866	1.0984569
Phase-1 RCT-174	1.1747421	1.0330352	0.8128052	1.1139053	1.2886201	1.004065	1.3626654	1.2588645	0.8872732	0.9487317	1.0310768	0.916866	1.0984569
Beta-actin, sequence 2	1.0427792	0.9228895	0.8796874	1.2241431	1.0241793	1.0360039	1.153502	1.2812283	2.584273	1.9560804	2.9687517	1.2891115	1.171628
Phase-1 RCT-109	1.0056187	0.8537542	0.7158874	0.8486533	0.9063498	0.8832561	0.9008338	0.8352155	1.6528914	1.5791022	1.726422	1.4719336	1.3032819
Phase-1 RCT-154	1.0267506	0.9824767	1.1020063	1.3082018	1.0872426	1.0588809	1.0488887	1.2767032	2.4118855	2.1739663	1.3080821	1.4243027	
Hypoxanthine-guanine phosphoribosyltransferase	0.9485482	0.9572228	0.9901889	1.0062994	1.1204743	1.0056595	1.2431145	1.0045193	1.4335092	1.4098204	1.2631109	0.8111888	0.8401588
Phase-1 RCT-213	1.072929	1.0292861	1.2234988	0.9684873	0.857576	0.8953807	0.9304098	0.8697222	1.1978152	1.1476324	1.0920191	1.1690984	0.9639938
Phase-1 RCT-280	0.8753857	0.9392061	0.9863078	0.9641823	0.9150471	0.8443008	0.8507803	0.7514002	0.7105132	0.6683113	0.6234036	0.7536441	1.562
Phase-1 RCT-12	0.9583873	0.9672071	1.2116052	1.2062598	1.3618164	1.1477536	1.2518828	1.2550064	2.1945798	2.014765	2.007208	0.8169473	0.8020723
Phase-1 RCT-293	1.027835	0.9734273	0.9639453	0.9740681	1.1000922	1.1424673	0.9766903	1.0513705	1.722828	1.473767	1.7991846	1.286051	1.1354396
Ribosomal protein S8	0.9040608	0.9206201	0.7716033	0.889737	0.9841762	0.9056741	0.9947805	1.0050572	1.7367666	1.5646151	4.7166566	1.5680916	1.5355658
Pyruvate kinase, muscle	0.9634752	1.0995954	1.1550775	1.1114538	0.9587283	1.0769331	0.9145398	1.2937896	5.7798767	1.9797003	1.2546709	1.1286444	
Nucleoside diphosphate kinase beta isoform	1.0003064	1.0749851	1.0030797	1.0543342	1.2017149	1.0431689	1.2861082	1.2396487	2.1390774	1.817485	1.9818262	2.4564807	0.6935563
p53CDC	1.0527911	1.1495955	1.0558807	0.9900763	0.8662483	1.3405198	0.9577152	1.0946665	5.307082	1.617485	1.9818262	2.4564807	0.6935563
Phase-1 RCT-156	0.8764306	1.0379046	0.7193449	0.8400236	0.8612678	0.7850265	0.8318169	1.169755	1.0798373	1.3230892	1.169937	1.0168707	0.8630965
Ribosomal protein L13A	1.005884	0.933702	1.1367239	1.0927899	0.9657029	1.0000143	1.1169755	1.0798373	1.3230892	1.169937	1.0168707	0.8630965	
Phase-1 RCT-258	0.7802773	0.9569349	0.7112828	0.812895	0.5261757	0.7571422	0.7027489	0.8894334	0.2585332	0.4108391	0.3130681	0.5222152	0.3889825
Insulin-like growth factor 1	0.7505121	0.8599256	0.5433369	0.5814908	0.823028	0.937788	0.6045317	0.8159744	0.2122163	0.594982	0.917113	0.4503593	0.9594204
Cytochrome P450 3A1	1.0252354	1.0438359	0.8948374	1.0386748	1.0029415	0.9793016	1.0856812	1.0228915	1.3781241	1.6800777	1.3218021	1.1679968	
(Ribosomal protein L6)	0.8751704	0.9084476	0.7972704	0.9842768	0.8491043	0.905133	0.9865587	0.8837327	1.6684073	1.3712818	1.6919669	1.3253903	1.3193959
Organic cation transporter 3	1.0826476	1.0532697	0.9915702	1.0923312	1.0108884	0.9566407	1.1091263	1.0543278	1.8650191	1.3647775	1.87289	1.0613303	0.8503911
Calpain 2	0.7119781	0.8883383	0.7421636	0.8776203	0.6572039	0.8795846	0.6873554	0.8809788	0.1547927	0.2092237	0.184574	0.105431	0.2234322
Phase-1 RCT-102	0.8032472	0.8632305	0.8469448	0.9200506	0.9450718	1.0165243	0.962967	0.8037962	0.3632182	0.5289698	0.4068349	0.5398988	0.7848276
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	1.3250047	1.0611315	0.7923204	0.8958325	0.9708971	1.0614043	1.1983253	1.0302552	0.4033502	0.6361771	0.4312413	0.888321	0.8083926
Phase-1 RCT-227	0.789873	0.8385057	0.7345083	0.88389316	0.9061073	0.9941402	1.0240858	0.8254803	0.2357116	0.4051067	0.3332047	0.4686131	0.6107768
N-hydroxy-2-acetylaminofluorane sulfotransferase (ST1C1)	0.7921876	0.9903437	0.8504164	1.193737	0.8814381	1.0617992	0.9584411	1.1216512	2.3671692	1.7218731	3.2783078	1.4111843	1.551224
Cathepsin S	0.9312711	0.9479446	1.0380588	0.9392062	1.0380639	1.119457	1.0560069	0.9743004	0.3620586	0.3620586	0.3568416	0.820394	0.8392816
Apolipoprotein CIII	0.7753239	0.9840111	0.8980362	0.8310163	0.8753931	0.998547	0.8594923	1.0716735	0.210114	0.2640289	0.2392556	0.5676882	0.7011159
Cytochrome P450 2A3	0.8953098	0.93078	0.9813502	1.0983769	0.8615699	0.8615699	1.0919978	1.1271523	0.3488784	0.4402862	0.4216227	0.8907613	0.7508113
Cytochrome P450 2C23	1.0983808	1.0197501	0.7849336	1.1778928	1.1015816	1.2234246	1.0754135	0.7547453	0.1377448	0.1489451	0.1363539	0.6568503	0.5800274
Apolipoprotein C1	1.5423923	0.9780118	1.4889206	1.2767898	1.0300382	1.0387816	1.1711787	0.9894889	0.1658402	0.1593139	0.0968419	0.5609185	0.9019414
Betaine homocysteine methyltransferase (BHMT)	0.7991151	0.9529607	0.6476971	0.9821994	0.654363	0.8562416	0.7933408	0.8500854	0.1659688	0.3743397	0.2188219	0.5620652	0.5864778
Paraoxonase 1	1.0975465	1.0098662	1.2888882	0.9494148	0.9802561	0.9743009	0.9584449	0.8907353	2.3183565	2.5111995	2.3214073	1.8594843	1.2712599
Phase-1 RCT-207	0.9759141	1.0829252	0.9123913	0.9643489	0.9824573	0.871403	1.0673535	0.9603872	1.732041	1.2393876	1.9117498	1.2033004	1.0068005
Cathepsin B	1.0255678	0.8954954	1.0418373	1.149675	1.0478411	1.1515938	1.1044135	1.1868571	1.4607508	1.2552889	1.2983661	0.973052	0.9888084
Phase-1 RCT-144													

Table 36

Alpha-1 microglobulin/bikunin precursor (Ambp)	1.0294667	1.00206	0.923935	1.1542581	1.0588148	1.2695646	1.2126223	1.3009173	0.4799612	0.6596317	0.4565953	1.0351863	0.917106
Cyclin D1	0.7522711	0.9929847	0.8431717	1.3517952	0.9463512	0.7222391	0.8216401	0.9942808	2.126251	1.5951105	1.6715975	0.7147006	0.6271998
Presenilin-1	1.0180442	1.1434969	0.831435	1.1203228	0.6226333	1.4842103	0.87424	1.08965	0.2225577	0.3507521	0.2405811	0.28987	0.273227
Protein tyrosine phosphatase, receptor type, D	0.8843585	0.9201573	0.7371344	0.9172241	0.723955	0.8835598	0.9253818	1.0069202	0.3424624	0.3974167	0.3542754	1.5584623	1.1290823
Multidrug resistant protein-1	1.3259294	1.3870392	1.5330157	1.242927	1.6336164	1.5589206	1.4011728	1.2439513	6.283614	4.383023	3.7162	2.986639	2.4482975
Cathepsin L, sequence 2	0.9053881	0.9213027	0.8581828	1.1526178	0.8993554	1.0567297	1.226659	1.226659	1.542618	1.2564187	1.4532796	1.9465402	2.1448183
JNK1 stress activated protein kinase	0.8933059	0.886892	0.813664	0.8354688	0.8540309	0.819115	0.8043814	0.7580049	0.5496806	0.8447266	0.5406055	1.1475723	1.4773842
JNK1 RCT-43	0.9566959	0.8786388	0.9999999	1.1606143	1.0204688	0.9712232	0.9832172	1.0984939	1.2377932	1.3949309	1.3950835	0.7646852	0.7672727
Tissue plasminogen activator	1.1878404	0.9475227	0.9619522	0.9811961	0.8445485	0.9399132	1.1014608	1.166615	1.6605104	1.2598134	1.4500482	0.7126551	0.6707375
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.8912513	0.8533623	0.815912	1.0105104	0.9614353	0.9149979	1.0526028	0.9747115	1.4286754	1.3170702	1.6026064	0.9970807	0.8748122
Phase-1 RCT-173	1.1196227	1.0139404	1.0392314	0.9381295	1.0144306	0.8125665	0.9279527	0.9297075	1.2639678	1.0804424	1.2427564	0.9463901	0.8621076
Omitidine decarboxylase	1.5649095	1.2799121	1.981091	1.632594	1.5947284	1.662608	1.646685	1.5781375	3.7153418	2.5020714	1.0285732	1.007474	
Zinc finger protein	1.0346603	0.9351077	1.071541	1.023906	0.9353743	0.8737894	1.0536128	1.1113871	1.7510642	1.2373524	1.6320338	1.0651818	0.6165031
CDK108	1.1413649	1.0510322	0.8865063	1.0166698	1.1126	1.0911391	1.1462832	1.1048334	0.837883	0.7621119	0.7115791	0.8294181	0.8326385
Phase-1 RCT-117	1.0661517	1.0485417	1.0328795	1.2404894	0.6065105	0.8982331	1.222006	0.8519294	0.7504737	0.8040006	0.5911028	1.117608	1.3598092
Phase-1 RCT-98	1.193153	1.0195495	1.1576043	1.1471956	0.9721188	1.1650281	1.419097	1.2916808	0.8875126	0.8839839	0.7908146	0.7311078	0.7195701
Aquaporin-3 (AQP3)	1.2830748	1.0527595	1.1751745	1.033078	1.0603076	0.896519	1.1353222	0.9500983	0.775085	0.8545302	0.7656481	0.8706986	0.9364509
Cholesterol esterase	0.5421339	0.8372366	0.6312923	0.7113413	0.6843076	0.8488731	0.6683747	0.9345577	1.390784	0.4223203	0.1788979	0.7335408	0.5145294
Ribosomal protein S17	1.0060154	0.9923112	0.7355	1.1973672	0.9946008	1.1156799	1.1021272	1.1746975	1.3828349	1.122626	1.3569356	1.1736933	1.2171785
Poly(ADP-ribose) polymerase	1.0000179	0.9891063	1.0385563	1.0784954	1.1966449	1.0395504	1.2084321	1.0491456	1.4426783	1.3661331	1.5267507	0.8588876	0.7631447
Annexin V	0.9183745	1.0909528	1.0365531	1.4713033	1.1040015	1.1658885	1.0738853	1.2149216	2.5433059	1.3920951	2.390962	1.0785352	0.8450508
Phase-1 RCT-33	1.0895994	1.0277511	0.9723309	0.941125	0.9355788	0.8652085	0.8802444	0.835891	0.4265149	0.7076982	0.497881	0.7538697	0.7784027
Phase-1 RCT-81	0.9475589	0.836913	1.1995426	0.7786248	0.8835477	0.8717371	0.5496894	0.8849878	1.2180402	1.1296659	1.2056668	1.0763998	1.1316828
Retinol dehydrogenase type III	0.7569451	0.8420706	0.8367764	0.952692	0.833178	0.9589888	0.8922828	0.9125143	0.3628763	0.6706508	0.4357715	0.7634023	0.8364856
ATPase inhibitor (rat mitochondrial IF1 protein)	0.6906655	0.6780174	0.6066249	0.8450211	0.8053493	0.8684148	0.7559661	0.8419712	0.1268003	0.2123534	0.1401303	0.6532091	0.6702426
Thymidylate synthase	0.7341977	0.9221479	0.9468976	0.6726181	0.7838271	1.0523049	0.6963643	1.1248381	1.5835414	1.2516994	1.391637	1.3240148	1.0798396
Interleukin-18	0.9525725	0.8881909	1.1581508	0.9886591	0.927273	0.8679296	0.9624977	0.9787818	1.3184268	1.078615	1.501565	1.2137866	0.8310826
Lectin:cholesterol acyltransferase	0.9966883	0.8310254	0.8039441	0.8920647	0.7254323	0.8720654	0.8361985	0.8720303	0.5884852	0.8010593	0.611783	1.3640891	1.3468955
Contrapsin-like protease inhibitor (CPI-21)	1.2987833	0.9583395	0.9115253	0.9550632	0.7194831	0.8898906	1.0610173	1.1877922	0.1883951	0.2515224	0.2760025	0.2782638	0.2218148
Proliferating cell nuclear antigen gene	1.0901912	1.1079373	1.0218015	0.9238662	1.0464454	0.999751	0.9592988	0.7986177	2.4221308	1.555596	2.1440887	0.9063702	0.5901841
Phase-1 RCT-230	1.0208163	0.9968577	1.0705598	0.9985827	0.9618669	0.8800221	0.8699032	0.7888269	1.9285115	1.4944279	2.4991176	0.8568987	1.8206348
Cytochrome P450 2D18	1.1797054	0.979142	1.1769613	1.0497086	1.2570934	1.2124425	1.1441336	0.9410191	0.3934356	0.6027201	0.4152303	0.9145611	0.6208303
Phase-1 RCT-48	0.9811075	0.9191778	1.0065954	1.5672988	0.9654068	1.2477021	1.2887195	1.2881846	0.3941817	0.5063516	0.4845119	0.7619011	0.8030474
Phase-1 RCT-292	1.0788162	1.0117143	1.0522372	1.2349845	1.0557908	1.059908	1.1430074	1.0587884	0.7484225	0.8687803	0.8359251	1.0213639	0.9972017
Arginosuccinate synthetase 1	1.0223128	1.1595207	1.3161118	1.1009265	1.2580545	1.189026	1.333116	1.2072364	0.351914	0.3814044	0.2738428	0.6420031	0.7132765
C-reactive protein	0.8368834	1.0084556	0.7213458	0.8373531	0.645536	0.8380184	0.7933075	0.9822225	0.4259598	0.5157487	0.4644139	1.6003964	1.2893289
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint														
(1)	ERY 40	ERY 40	ERY 40	ERY 160	ERY 160	ERY 160	ERY 160	ERY 160	ERY 160	ERY 160	ERY 160	ERY 160	ERY 160	ERY 160
Compound-Dose	347	348	349	357	358	359	1427	1428	1429	1430	1431	1432	1433	1434
Animal Number	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Liver Toxicity Necrosis Classification														
Gene Name														
Osteocalcin	1.2026261	1.3092251	1.5923856	1.356613	1.366012	1.6869136	1.3028886	1.0782755	1.2190565	1.1174128	1.4339525	0.80046		
Statmin	0.7425447	0.7041455	0.855919	0.7748793	0.855919	0.7748793	0.855919	0.7748793	0.855919	0.7748793	0.855919	0.7748793	1.1454337	
Catpardin I heavy chain	0.7680881	0.9686016	0.8763257	1.1213621	0.8167563	0.8342212	0.9375908	0.8018732	1.1343472	1.1679586	1.0913098	1.0538325		
Phase-1 RCT-179	1.2585251	0.7787904	0.6853576	0.6042856	1.1812758	0.6942689	1.2012443	1.0557821	1.1328896	0.9900041	1.1454169	0.8158805		
Phase-1 RCT-107	0.7147028	0.8178753	0.7678725	1.1596772	0.7517578	0.7678725	1.1596772	0.7517578	0.7678725	1.1596772	0.7517578	0.7678725	1.0041511	
Heme oxygenase	1.2488883	1.1677031	2.2281592	1.5267172	1.0935316	1.356994	0.6973632	0.7669441	0.9090909	1.1717374	0.9054684	0.6083711	0.903572	1.0996978
Collagen type II	0.3924841	0.5576515	0.5752401	0.6846158	0.7270265	0.7585186	0.8895812	1.0807562	0.8649145	0.7639762	0.8171601	1.5271381	0.8580046	
Phase-1 RCT-81	1.1517357	0.7662529	1.0327783	0.9474717	0.9932416	1.4305333	1.3133014	1.266943	1.4841641	1.6579449	1.5810478	1.6705412	0.9639936	
Glycine methyltransferase	0.674755	0.8669856	0.8228823	1.2389716	0.7620661	0.7551005	0.8259236	1.3130367	1.483147	0.968223	1.1531949	1.1796005	0.9639936	
Cystatin C	1.6805317	1.6770654	1.9283756	1.725051	1.916018	1.5475	1.2361157	1.398885	0.9597116	1.122692	1.1230419	0.8241904	0.9808163	
Melanoma-associated antigen ME491	0.8697023	0.7901702	1.1067545	1.3265237	0.9917831	1.1685394	1.029649	0.884646	0.780829	1.2236555	1.047746	1.1468814	1.1458356	
Phase-1 RCT-146	0.6504979	0.6889551	0.6658551	0.6494533	0.8574185	0.7677939	0.8269724	0.7957894	0.694517	0.7998275	0.9003861	0.8775733	1.2148983	
Gamma-actin, cytoplasmic	0.7284979	0.7987466	0.9145621	1.2765104	1.0076146	1.112042	1.1267369	1.1161393	0.7870647	1.1789495	0.9908025	1.1409769	0.8717728	
Adenine nucleotide translocator 1	0.6938838	0.7085989	0.5970422	0.6428037	0.7402954	0.6505518	1.0659549	1.146133	1.24066	0.5910414	0.9102788	0.847212	1.1418487	
Thymosin beta-10	1.2468116	1.0271078	1.1670034	1.2066203	1.4952633	1.3744348	1.6948355	1.9788992	1.2637242	1.5081294	1.4769572	1.2366908	1.1418487	
Insulin-like growth factor I, exon 6	1.7878871	2.9814765	1.7998725	2.3924198	1.6943566	1.2290379	0.722778	0.9726941	0.9355737	0.8551628	0.9654805	0.9458267	0.9992795	
Phase-1 RCT-78	1.2980974	1.1450413	1.2494638	1.1899417	0.9948611	1.10499	1.0022836	1.0385377	1.1237543	1.0074555	1.0235473	1.0491165	0.9764101	
Alpha-2-microglobulin	1.023775	1.1298805	1.1925472	0.7655748	0.8935513	0.9363607	1.0818118	1.126552	1.0873271	1.208901	1.2874383	1.0375416	0.6288463	
High affinity IgE receptor gamma chain (FcER1gamma)	0.9549483	1.0581539	1.0802021	1.133739	0.9506681	1.1409091	1.3028888	1.1144354	0.9924606	1.5275712	1.2528139	1.5065242	0.9851973	
60S ribosomal protein L6	1.145843	1.1708345	0.7689652	0.9833487	1.178152	1.285646	1.3805608	0.9922667	1.185912	1.1907148	1.3126433	1.0231853	0.9444673	
IgE binding protein	1.0974662	1.2172916	1.1906631	1.2607429	1.1248055	1.2270533	1.1617582	0.9267734	0.7952948	0.9481859	0.938811	0.8655204	0.9477004	
Phase-1 RCT-149	0.9581749	0.8636389	0.9420309	0.8345354	0.9667115	1.0363637	0.8583995	0.8698943	0.8418139	1.1328065	1.0499785	1.3418611	1.0516189	
Cytochrome P450 2C11	1.2974398	1.3428787	1.4160886	1.2898746	1.4803143	1.8693297	0.8692585	0.9180524	0.7856527	0.8270645	0.8506768	0.9454064	1.6300285	
Uncoupling protein 2	0.8197387	0.7520121	0.8110218	0.9060019	0.9007807	1.0503529	1.2120478	1.0491385	0.9461098	0.8045148	0.9155442	0.7690843	1.2184545	
Cotilin	1.1596153	1.1228223	1.0971475	0.969414	1.1017263	1.1627706	1.5553347	1.1873811	1.2281255	1.3882216	1.1873811	1.2281255	1.5273058	0.94662
Alpha-tubulin	0.7245302	1	0.7313014	0.909707	0.9308842	0.8226191	1.0797734	1.0660238	1.0823735	1.000373	1.1894689	0.8342411	0.9572169	
Stearyl-CoA desaturase, liver	2.4862251	2.1931744	0.8620846	1.2563969	2.0054743	0.9742059	0.4725772	1.210833	0.8422177	1.2732589	0.623611	1.4198067	0.8491228	
Glutathione S-transferase theta-1	0.9295537	1.0754044	0.8975942	0.6840228	0.9184123	0.8708334	1.4352432	1.2442105	1.1178258	0.8538747	1.44454	1.1718204	0.933528	
alpha-1,2-fucosyltransferase	1.9225607	2.1253161	1.9157763	1.5668225	2.0981205	2.0072074	1.4039922	1.3233782	1.2478471	1.0689714	0.963683	1.0493133	1.2450778	
Phase-1 RCT-138	1.1647573	1.4845182	1.3328362	1.5551229	1.2897491	1.0851772	1.1232793	1.0904814	1.0458016	1.1775315	1.0193714	1.1157991	0.8926767	
Phase-1 RCT-295	1.1677265	1.1612668	1.2289724	1.2162092	1.2208884	1.2437774	1.2704895	1.1392405	1.1143041	1.0764836	0.9391141	0.9489988	1.0628661	
Phase-1 RCT-164	1.0402565	0.8010564	0.8734193	0.7082773	0.7169674	0.8348221	1.0848061	1.1119642	1.1638545	0.8788201	0.9927115	0.9507861	1.3892102	
Alpha-2-macroglobulin, sequence 2	1.1449685	1.1407714	1.1071364	1.2010041	0.9693308	1.1298433	1.1355937	1.1544725	1.1287512	1.0237825	0.8732068	0.9958679	0.813369	
Bliverdin reductase	0.6681442	0.8702079	0.7821151	0.9126887	0.8095307	0.902802	1.2259324	0.9709348	0.8318418	0.7742173	0.8120478	0.7490429	0.8700905	
Phase-1 RCT-121	0.8119899	0.604617	0.5377492	0.4841671	0.7870928	0.5461627	0.8527967	0.6368421	0.8285904	0.6994574	0.8122291	0.7490429	0.8700905	
Dynamin-1 (D100)	1.8601369	2.0465214	1.6911687	1.9973686	1.9360586	1.5303355	1.1959385	1.0894736	1.1585805	1.2329221	1.2848136	1.3384109	0.8814669	
Phase-1 RCT-192	1.0165039	1.0173865	1.0808277	0.9100355	1.1424866	1.0208897	1.3901187	1.0070938	1.247026	1.517279	1.2719655	1.3458884	0.8588728	
Fatty acid synthase	1.5265402	2.2092402	0.7746813	1.9082855	2.147269	0.9008652	0.8563778	1.8709335	1.538704	1.9389284	0.9363587	2.1758975	0.9596937	
Phase-1 RCT-211	1.0538871	1.4267083	1.1824841	1.1920456	1.1102041	0.9257974	0.8534144	0.8583181	1.2349023	1.1421413	1.4086732	1.0357364		
Ribosomal protein S9	0.9792407	1.0527427	1.0238551	1.0059303	0.93758	1.2659887	1.6698213	1.233773	1.0630669	1.2335374	1.6987162	1.3010687	1.052258	
NADP-dependent isocitrate dehydrogenase, cytosolic	1.4509869	1.2861049	1.307384	1.3523717	1.4610555	1.138542	1.1863923	1.3212786	1.336419	1.231166	1.1699276	1.2334535	1.0789384	
Phase-1 RCT-57	0.6953401	0.6107408	0.6034507	0.5506203	0.9634507	0.9063457	0.8834895	0.7712978	0.8246235	1.005625	0.9441226	0.7437168		
Phase-1 RCT-36	1.3508853	1.7088022	1.080213	1.4165789	1.5689632	1.1356467	0.9074897	0.8064921	0.8746571	0.8653186	0.7331198	0.819108	1.0530068	
Apolipoprotein AII	1.9483172	1.1647887	0.818787	1.378301	1.228592	0.8443484	1.2570814	1.9218968	1.5032048	1.0243785	1.4723485	1.3779899	0.9086191	
Phase-1 RCT-68	0.9644307	1.0135814	0.9458378	1.0007375	0.9091954	0.8880238	0.8516746	0.8755123	0.9903824	0.9817082	1.0382708	0.9321627		

Multidrug resistant protein-2	1.0429567	1.0760014	1.4257512	1.1277463	1.2429858	1.3760002	0.7774884	0.9666043	0.6789194	0.6528803	0.7378322	0.9209976	1.3991171
Phase-1 RCT-39	0.7656649	0.8741686	1.0414276	0.7266601	0.5917676	0.7445009	0.5532815	0.8474641	0.6807369	0.8655539	0.8689601	0.6253865	1.0859538
NIPK	1.1321809	1.0811802	1.2216712	1.297203	1.2976403	1.1025965	0.7136357	0.8366945	0.7220435	0.8472622	0.759741	1.0403816	1.0318016
Fl-ATPase beta subunit	1.0151451	0.9459272	1.1287054	1.323386	1.1881921	1.0497014	1.2680036	1.5200603	1.447793	1.541783	1.3932399	1.5996294	1.0318016
Elongation factor-1 alpha	1.2920802	1.1862699	1.2783417	1.8031505	1.1785505	1.2617097	1.3642035	1.2609599	1.3589288	1.4591008	1.5840279	0.8980628	0.8980628
Phase-1 RCT-24	0.7786514	0.6400665	0.6620824	0.887458	0.7637618	0.7055772	1.052632	0.9317624	1.1052632	0.8773154	0.9278699	0.9324797	0.9324797
Beta-tubulin, class I	0.8379166	1.0013204	0.8198057	1.0521299	0.8478207	0.8179379	0.8588993	0.9814347	0.8066638	0.9723935	0.8673154	0.9278699	0.8361117
14-3-3 zeta	0.736935	0.7811954	0.6178175	0.5725071	0.7398078	0.6376297	0.7012075	0.8241465	0.774097	0.5609879	0.6169412	0.7109001	1.1570292
Alpha-grethymosin	1.2102606	1.5774446	1.1910688	0.9513859	1.0076987	0.7675907	0.4394915	0.5569697	0.4394915	0.5569697	0.4394915	0.5569697	0.7293853
Phase-1 RCT-58	1.2146273	0.9487481	0.6084607	1.6120944	2.4804437	1.4408379	0.7443401	1.1756842	1.0180882	0.9818405	0.8015429	0.7755446	1.0213488
Phase-1 RCT-290	0.7920154	0.620732	0.7804446	0.7408332	0.7511069	0.8645741	1.0200297	0.9882597	0.9138388	0.9779649	0.1317586	0.9435568	0.9138388
Transitional endoplasmic reticulum ATPase	0.572538	0.6642112	0.4876743	0.5900502	0.5154992	0.4382124	0.8527344	0.867344	0.6148359	0.5694947	0.617462	0.8490658	0.8490658
Beta-actin	1.7396363	2.048625	1.9872942	2.1548986	1.9885057	1.6489182	1.2253783	1.1558308	0.9892024	1.2527051	1.1238992	1.0826218	1.0490658
Thioredoxin-1 (Trx1)	0.8654782	0.9344669	0.8463278	0.8049887	0.7538258	0.9803758	1.2957604	1.0185992	1.0900458	1.318891	1.085131	1.340914	0.8473047
Phase-1 RCT-174	0.8035499	1.8599389	0.7832511	1.7396603	0.9737464	0.7929266	1.1995757	1.0797114	1.1309184	1.0737472	1.0886105	1.1564051	0.8673047
Beta-actin, sequence 2	1.277373	1.558861	1.5187172	1.3404197	1.4169472	1.2594873	1.5474713	1.3319837	1.38078	1.4821068	1.2939512	1.3680053	0.9210037
Phase-1 RCT-109	1.041192	1.0838377	0.8928721	1.0017782	1.0443689	0.8677666	1.0425779	0.9197751	0.9425587	0.8318519	0.8871394	0.7487509	1.0880965
Phase-1 RCT-154	0.6990942	0.8591362	0.3990988	0.4279831	0.5440439	0.2889934	0.9881675	1.1233082	1.0023898	0.8737112	0.8874736	0.944659	0.9359556
Hypoxanthine-guanine phosphoribosyltransferase	0.7764919	0.9132763	0.7539966	0.6553537	0.6918587	0.9256873	0.8591825	0.8909603	1.037875	1.1372293	1.2055061	0.9613363	0.9613363
Phase-1 RCT-213	0.7185516	0.8969128	0.9157651	0.877345	0.5832552	0.7792881	0.5363454	0.8046686	0.672716	0.8653044	0.9582335	0.7240528	1.0349805
Phase-1 RCT-280	0.8524395	0.8968348	0.7343001	0.8741783	0.8257312	0.8391931	0.7296666	0.89719	0.8356193	0.8374827	0.8241765	0.8252894	0.8679741
Phase-1 RCT-12	1.7012845	1.5405062	1.5333056	2.0358284	1.50766	1.5778964	1.2358988	1.3467244	1.1907624	1.1550003	1.0603774	1.1440916	0.9000813
Phase-1 RCT-283	1.6277735	2.0954841	2.0284984	2.3827238	1.881327	1.9100357	1.1717864	1.5111094	1.3435903	1.5718602	1.445578	1.2278378	0.9385486
Ribosomal protein S8	0.7849323	0.915493	0.8613622	1.3102185	0.9287162	1.139394	0.7015421	0.842334	0.7256505	0.8462439	0.8714502	0.8415882	1.0030035
Pyruvate kinase, muscle	1.0080771	1.2025845	1.2897794	1.1927335	1.0598292	1.4654111	1.3503535	1.252334	0.9256505	0.8462439	0.8714502	0.8415882	1.0030035
Nucleoside diphosphate kinase beta isoform	0.8657392	0.9686197	0.8584074	0.7700139	0.7852437	1.4647888	1.1938545	1.0682738	1.0253315	0.6602161	0.7093477	0.8900849	1.381024
p55CDC	0.9491013	0.9587625	1.0458912	0.9524584	0.9287878	1.0501037	0.8441618	1.1761231	1.1588861	1.1957524	0.9654701	1.3742363	0.8639733
Phase-1 RCT-156	1.6738642	2.0729465	1.6548003	1.6627603	1.8791423	1.5175807	1.5759262	1.5360533	1.4365431	1.6355418	1.4422266	1.5083418	0.9959784
Ribosomal protein L13A	0.8573057	0.8994335	0.8093548	0.8536491	0.8544778	0.8274144	0.9043382	1.0343982	1.513679	1.3080506	1.2366265	1.2277861	0.8890171
Phase-1 RCT-258	1.6289194	1.9537417	2.182228	1.702991	1.8362707	1.4235052	1.0343982	1.513679	1.3080506	1.2366265	1.2277861	1.5732994	0.8890171
Insulin-like growth factor I	1.373849	1.3614502	1.5483499	1.1007757	1.0586419	1.6822007	1.873922	1.1705515	1.0483115	1.5633755	1.7201829	0.914504	0.980382
Cytochrome P450 3A1	1.4650297	1.3823649	1.3384824	1.5932895	1.5649108	1.7208945	1.3337609	1.2111925	1.1840348	1.3582498	1.030916	0.9788765	1.038725
(Ribosomal protein L8)	1.1471851	1.0897277	0.7856196	1.063088	1.1848621	1.2040404	1.4627883	0.9982783	1.3235891	0.9682989	0.7121626	0.8043568	0.9417419
Organic cation transporter 3	0.9670508	1.0259094	1.0658182	1.2313174	1.0374169	1.2190478	1.0319394	0.9093909	0.8058917	1.0353634	0.8022061	0.7718954	1.0870981
Calpain 2	1.078858	0.7399494	0.6012607	0.7509714	1.049277	0.664151	0.9876862	1.3366031	1.3487008	1.1359172	1.1768228	1.2220567	1.0409685
Phase-1 RCT-102	0.832004	0.8856723	1.0420256	1.1355275	0.677312	0.9167568	0.7833646	0.9200042	1.0544983	0.9362465	1.0492365	0.8578932	1.0088785
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	1.3546549	0.9885967	1.1172982	1.2014492	0.8836281	1.2844068	1.2234123	1.0927883	1.2711573	0.9923551	1.1324329	1.0679727	0.9447098
Phase-1 RCT-227	1.0899092	1.1319881	1.4620328	1.4302275	1.0069444	1.5106228	1.0805657	1.0936695	1.2702483	0.9803241	1.038143	1.1098442	1.0385723
N-hydroxy-2-acetylaminofluorene sulfotransferase (STC1)	1.2370715	1.4700941	1.9400831	1.8396395	1.4638822	1.5979587	1.547967	1.2923077	1.152874	1.3343829	1.0128534	1.4510384	1.31053
Cathepsin S	1.0044744	0.9434446	1.0640476	0.6286875	0.9739689	0.9489717	1.4994137	1.074966	1.4731585	1.5217717	1.6408852	0.9794055	1.216628
Apolipoprotein CIII	1.5227032	1.1715482	1.5994804	0.8660817	1.5536392	1.1439302	0.6331493	0.9162771	0.760761	0.6631087	0.8195688	0.8166431	1.3780195
Cytochrome P450 2A3	1.6157617	1.262301	1.0541415	1.1111095	1.3305496	0.7714885	1.3326943	1.7531288	1.4081883	1.3464501	1.5639318	1.1341742	0.8166658
Cytochrome P450 2C23	1.2281835	1.1967651	1.1390838	0.8270922	1.0211895	1.4266938	1.6569028	1.2985986	1.4390774	1.9080673	1.6495572	1.542801	0.8957563
Apolipoprotein C1	1.6409509	3.3976142	2.1532802	2.3424537	3.284086	1.5356154	0.8192176	1.3127484	1.0847023	1.1357222	0.8464575	1.0236729	1.0236729
Betaine homocysteine methyltransferase (BHMT)	1.064868	0.7929918	1.3002454	1.1449146	1.1623605	2.056179	1.3656	1.4984944	1.3507122	1.4845159	1.4584432	1.4288072	1.0724077
Paraoxonase 1	0.7381812	0.7629108	0.626528	0.5377607	0.7942925	0.5695092	0.8876154	0.835314	0.8233585	1.0642428	1.1331265	1.2131498	0.8643853
Phase-1 RCT-207	2.007732	1.5547558	1.2820023	2.183344	1.7193081	2.7044382	1.4004478	1.6570256	1.180362	1.6765229	1.1361836	1.6397537	1.062121
Cathepsin B	0.9012885	0.7811188	0.8628155	0.876556	0.8949319	0.8341335	0.9636372	0.9787974	0.8529155	1.0506663	0.9174421	0.9043912	1.0343473
Phase-1 RCT-144													

Alpha-1 microglobulin/bikunin precursor (Ambp)	1.1606231	0.7863564	1.0794332	0.8772971	0.9527208	1.5145804	1.5361983	1.9155146	1.7834073	1.737669	1.7440803	1.7327298	0.855624
Cyclin D1	1.0421472	0.8534555	1.4269822	0.8978998	1.0087045	1.3570201	1.0821805	1.1401956	1.5442654	1.7053354	0.9049702	1.503062	0.9739355
Presenilin-1	1.4585278	1.0271826	1.3516293	1.1765184	1.6732337	1.8200772	1.2753798	1.8967394	1.3879656	1.2814281	0.8188112	1.7835559	0.953139
Protein tyrosine phosphatase, receptor type, D	1.857611	2.0188892	2.088778	2.0149822	1.6254431	1.5690398	1.3448243	1.5243981	1.2487815	1.191796	1.3873877	1.2801254	0.8666149
Multidrug resistant protein-1	0.8796588	1.0413111	1.1247864	1.0849837	1.037828	1.0692706	0.7954047	0.8582248	0.7058407	0.845758	0.802066	0.764857	1.2525847
Cathepsin L, sequence 2	1.0600194	1.1054034	1.2894096	1.2931957	0.6835779	1.0724325	1.2081088	1.1689702	1.1977792	0.8341143	1.3349735	0.9598955	1.0605729
JNK1 stress activated protein kinase	1.3753843	1.5661849	1.7435573	1.2649729	1.3372854	1.5757575	1.0695219	1.0336959	0.8937523	0.7203483	0.6946837	1.3204303	
Phase-1 RCT-43	0.6577716	0.6252622	0.5858333	0.5368241	0.719569	0.5629563	0.8379348	1.065162	1.140237	0.8908395	0.9235171	0.9523817	
Tissue plasminogen activator	1.0143508	1.1218393	1.1211767	1.1750767	0.9425874	1.0918919	0.8764754	0.9078947	0.9823918	0.9619153	0.8867379	0.8583304	0.9070756
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.0642821	1.075513	0.8963088	0.9618935	1.017154	1.317445	1.6058581	1.0310477	1.2950604	0.8675518	1.298355	0.8844897	0.9520814
Phase-1 RCT-173	0.6137975	0.8623458	0.6016041	0.620755	0.8461554	0.5180224	1.1816896	0.7481364	0.8414759	1.0604639	1.3085568	1.2420225	0.9573818
Omitline decarboxylase	0.3791591	0.6706306	0.4529491	0.3236948	0.2759356	0.2511723	0.7531398	0.8604029	0.5683225	0.5823776	0.8898697	0.7252544	1.1602727
Zinc finger protein	0.7537276	0.8624494	0.6547982	0.8201	0.8722005	0.5686067	0.9190999	0.9359543	1.1099083	0.6014916	0.8654311	0.7258041	0.8131021
CDK108	0.7284469	0.8133175	0.8168041	0.9758437	0.793772	0.9112475	0.8758365	0.8669315	0.8640122	1.2218041	1.1360697	1.0576224	1.0118482
Phase-1 RCT-117	1.6031692	1.480047	1.4980695	1.6953723	1.8529458	1.6630363	0.9754423	0.7304138	1.3667243	0.9382309	1.2134917	1.0609888	1.1057533
[Phase-1 RCT 98]	1.0453062	0.9660816	1.0710105	0.8981536	0.9837602	1.1143131	0.9730949	1.006865	1.0757663	1.1370387	1.1023773	1.3310875	1.0839231
Aquaporin-3 (AQP3)	0.9245898	0.8876571	0.8217716	0.8768141	0.8034213	0.8023599	0.8174987	0.8104654	0.7708375	1.1459538	1.0984587	1.1716756	1.0582708
Cholesterol esterase	1.1637725	2.023266	1.7503668	1.9304663	1.1211764	0.9278716	1.8611549	1.5578659	1.7463984	1.7582032	2.075416	1.4523927	0.8418495
Ribosomal protein S17	1.3758495	1.2561696	1.4631997	1.5201687	1.3182593	1.7475662	1.6816936	1.4334098	1.2677597	1.5359879	1.3400729	1.3259101	0.9071206
Poly(ADP-ribose) polymerase	0.8592435	1.0418109	0.7395945	0.7682885	0.9291368	0.6722808	1.0289971	0.9497134	0.9087828	0.8240436	0.9169005	0.742717	1.0390704
Annexin V	0.8939436	0.9338028	1.1057111	1.1032343	1.4242548	1.2257704	1.0582187	1.036291	1.0852834	0.7133434	0.7938308	0.9342983	1.3065382
Phase-1 RCT-33	2.0970068	2.9340434	1.6580931	1.9668188	2.0105865	1.4192468	1.4708335	1.158662	1.0449849	1.1741794	1.0543674	1.238927	1.1009438
Phase-1 RCT-61	1.107365	0.842182	0.6711135	0.9108878	0.9640402	0.6222223	0.6911332	0.8868536	0.7071823	0.969032	0.9450105	0.9195328	0.7939994
Retinol dehydrogenase type III	1.2840405	1.2224274	0.874509	0.5587774	0.8639023	0.9489317	1.411922	1.3492821	1.266464	1.2745916	1.2525516	1.4018663	0.8501996
ATPase inhibitor (rat mitochondrial IF1 protein)	2.090407	1.9831873	2.074275	1.6107311	2.0396743	1.1828767	1.3770641	1.3011901	1.3365568	1.5292716	1.4290857	1.3852538	0.8644434
Thymidylate synthase	0.6809977	0.8612576	0.6693229	0.7738677	0.8638361	0.8082964	0.8315975	0.8421052	0.777562	0.7109714	0.5502197	0.6380144	1.4627135
Interleukin-18	0.6230044	0.6391955	0.6055962	0.6748419	0.8586849	0.6629283	0.8329247	0.8911885	0.7334618	0.5354748	0.6707565	0.5731956	1.2920635
Lectin:cholesterol acyltransferase	1.3880682	1.7109964	1.6754762	1.3115153	1.3805685	1.2966706	1.2860893	1.5192174	1.4022695	1.4197883	1.3977868	1.3844842	0.792896
Contrapsin-like protease inhibitor (CPI-21)	1.3734828	1.690833	1.850442	1.1007278	1.0546604	1.273477	1.4321889	1.4464076	1.3544548	1.6105892	1.3204739	0.9160346	
Proliferating cell nuclear antigen gene	0.72955707	0.9836678	1.0484169	0.9880341	1.032314	1.2451614	1.1090945	1.038547	0.7253844	0.7899413	0.7929193	0.8680538	1.5091192
Phase-1 RCT-230	0.7296543	0.768562	0.8964782	0.813264	0.8939495	0.8484849	0.5712763	0.737663	0.5372878	0.7919134	0.8789224	0.8176888	1.1251643
Cytochrome P450 2D18	0.6623229	1.2398086	0.6985381	0.7342714	0.5818508	0.8165528	1.0085326	1.0400596	0.8924701	0.879772	1.2676868	1.4239991	1.0741946
Phase-1 RCT-48	0.8894033	0.9134955	0.8393309	0.8156248	0.8217123	0.7146497	1.1194041	1.3624688	1.3464701	1.2991847	1.2676868	1.4239991	1.0741946
Phase-1 RCT-292	1.0427998	1.0942804	1.0219185	1.0739955	1.104166	0.8574238	0.9292005	0.8717805	0.9213201	1.2387094	1.0524098	1.1727129	1.0376415
Argininosuccinate synthetase 1	2.0111036	2.7664578	2.2556889	1.7358116	2.163167	1.1585284	0.9233707	1.1850052	0.8140929	1.3234562	0.8666694	1.2321465	0.9998384
C-reactive protein	2.1911695	2.8396351	2.6113365	2.3442614	1.9922899	1.8620551	1.3437426	1.5271555	1.2224957	1.221843	1.3703938	1.3762796	0.9192518
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 hr: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint																	
(1)																	
Compound-Dose	ETH 2500	ETH 2500	GAN 50	GAN 50	GAN 50	GAN 50	GAN 50	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200	GAN 200
Animal Number	138	139	2446	2447	2448	2457	2458	2459	427	428	429	437	438	439	440	441	442
Liver Toxicity Necrosis Classification	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name	0.9867295	0.8660413	1.0779759	0.9888831	0.9330887	1.067947	1.0937978	1.025009	0.9802735	1.1826694	1.156411	0.9991484	1.0754539	0.9991484	1.156411	0.9991484	1.0754539
Osteocalcin	0.9866385	1.2155915	1.0171176	0.9999999	0.9212006	0.970161	0.959928	0.9157791	0.9731137	0.7863344	0.8549556	1.0026892	0.8101397	0.8549556	1.0026892	0.8101397	0.8549556
Calpain I heavy chain	0.9979631	1.0141376	0.9829603	1.0602343	1.1397586	1.120806	1.0281618	0.855568	1.0231395	0.8553205	1.0231395	0.8553205	1.0231395	0.8553205	1.0231395	0.8553205	1.0231395
Phase-1 RCT-179	0.9415132	0.8705862	1.3361788	0.9355581	0.9850871	0.9906796	0.9873737	0.9828973	0.9994339	1.1257797	1.0792457	0.9318144	1.0579073	1.0792457	0.9318144	1.0579073	1.0792457
Phase-1 RCT-107	0.9165384	1.0247048	1.0252148	1.0252148	1.0252148	1.0252148	1.0252148	1.0252148	1.0252148	1.0252148	1.0252148	1.0252148	1.0252148	1.0252148	1.0252148	1.0252148	1.0252148
Heme oxygenase	1.1285072	1.2850593	1.6527284	1.1091547	0.9900816	1.270328	0.974747	1.0761231	1.0298804	0.9404096	0.6739895	0.8063681	0.9233145	1.2351356	0.8063681	0.9233145	1.2351356
Collagen type II	2.292945	1.2513629	0.8445768	0.9828427	0.9876089	0.8600317	0.8827872	0.8741542	1.1163328	0.8754919	1.066675	1.0323948	0.9453684	1.066675	1.0323948	0.9453684	1.066675
Phase-1 RCT-81	1.0320483	0.912656	0.9786124	0.862092	0.9675527	1.5420008	1.6263125	1.7007111	1.0163328	0.8754919	1.066675	1.0323948	0.9453684	1.066675	1.0323948	0.9453684	1.066675
Glycine methyltransferase	0.8464772	1.5014504	1.2637168	1.4627147	1.0691334	0.705706	0.8569696	0.9762675	1.0406481	1.0578218	0.8166271	1.1344842	1.0939704	0.8166271	1.1344842	1.0939704	0.8166271
Cystatin C	0.9618548	0.974699	0.8636607	0.839111	0.804843	0.705706	0.8569696	0.9762675	1.0406481	1.0578218	0.8166271	1.1344842	1.0939704	0.8166271	1.1344842	1.0939704	0.8166271
Melanoma-associated antigen ME491	1.0684133	1.1439472	1.2173206	0.9545053	0.8930039	0.9578408	0.9743524	0.8483532	0.702834	1.267378	0.985046	0.9418379	1.0746545	0.985046	0.9418379	1.0746545	0.985046
Phase-1 RCT-148	1.0212888	1.4086957	1.149478	1.1259813	1.0173331	1.029927	1.0413145	0.9523689	0.9744344	0.6898707	0.7753984	1.003929	0.8755628	0.7753984	1.003929	0.8755628	0.7753984
Gamma-actin, cytoplasmic	0.8455072	0.8528099	0.7102713	1.2409988	1.1031902	0.9530774	1.05954	0.819104	0.9533553	1.0170009	0.7883285	0.7520483	0.8894352	0.7883285	0.7520483	0.8894352	0.7883285
Adenine nucleotide translocator 1	1.0543376	0.8578113	0.7798789	0.8886606	0.9255238	0.8342212	0.9128272	0.7878216	1.0321319	1.1358042	0.9358121	0.9867431	1.2958492	0.9358121	0.9867431	1.2958492	0.9358121
Thymosin beta-10	1.0642501	1.1469731	0.8832892	1.0291269	0.8819312	0.9392046	0.9832769	0.9668596	0.8309888	1.2810351	1.1150193	0.9136022	1.2958492	1.1150193	0.9136022	1.2958492	1.1150193
Insulin-like growth factor I, exon 6	0.8065419	0.4940214	1.3375252	0.927959	1.1883961	1.1190778	1.2168548	1.0502431	0.9889236	1.2828298	1.2079836	0.8938278	0.7629918	1.2079836	0.8938278	0.7629918	1.2079836
Phase-1 RCT-78	0.9928808	0.9787365	1.002099	0.8931296	1.0020434	1.0730981	1.010598	1.0139669	1.1325096	1.0011449	0.9182543	0.9503194	1.087065	1.0011449	0.9182543	0.9503194	1.087065
Alpha-2-microglobulin	0.5040586	0.9079015	1.4367491	0.5778601	0.8604845	0.8183812	0.702008	0.5361544	1.1587406	1.2157687	0.9158412	1.4126176	1.877096	1.1587406	1.2157687	0.9158412	1.4126176
High affinity IgE receptor gamma chain (FcER1gamma)	1.11802	0.937584	0.9080078	1.0025078	1.0561334	0.8745924	0.9445157	0.8502828	0.9258942	0.866652	0.9665314	1.2060736	1.1900371	0.866652	0.9665314	1.2060736	1.1900371
60S ribosomal protein L6	0.9039219	0.9444764	1.3491542	1.0249748	1.0249748	1.0249748	1.0249748	1.0249748	1.0249748	1.0249748	1.0249748	1.0249748	1.0249748	1.0249748	1.0249748	1.0249748	1.0249748
IgE binding protein	1.0244802	0.8389378	1.0499251	1.1437769	1.1142975	1.2377777	1.0977766	1.0258774	0.8434594	0.8453958	0.9094039	0.9887276	1.6653421	0.8453958	0.9094039	0.9887276	1.6653421
Phase-1 RCT-149	1.2010533	0.9170154	0.8978062	1.0821066	1.0536274	1.0679649	0.9742227	1.0110431	0.860052	1.059837	0.8876312	1.059866	0.9894037	1.059837	0.8876312	1.059866	0.9894037
Cytochrome P450 2C11	1.1963612	2.0363884	0.508739	0.8444258	1.0428321	0.7368922	0.9951202	0.6225597	1.1582094	0.8843622	1.030908	1.193448	1.103461	0.8843622	1.030908	1.193448	1.103461
Uncoupling protein 2	1.1095014	1.2501896	0.7330343	0.8795259	0.8379348	0.6317613	0.7680354	0.8173721	0.8992566	0.9718789	0.9947664	0.897804	0.9587981	0.8992566	0.9718789	0.9947664	0.897804
Cofilin	1.080122	0.8404278	1.0889548	1.1118344	1.1435035	1.01354	1.0486804	0.9093896	1.028559	1.4348117	1.1311727	1.2308909	1.0598533	1.028559	1.4348117	1.1311727	1.2308909
Alpha-tubulin	1.1926374	0.8850656	0.5984575	0.987673	0.9247625	0.7757889	0.9085934	0.7512336	0.8576809	1.0330559	0.8429738	1.0080634	0.9135685	0.8576809	1.0330559	0.8429738	1.0080634
Stearyl-CoA desaturase, liver	1.7262263	0.399251	0.1395345	1.5252275	2.5075736	1.3618592	1.3181487	1.0183637	0.9645874	1.3311435	0.9182911	1.3875049	0.6971127	1.3618592	1.3181487	1.0183637	0.9645874
Glutathione S-transferase theta-1	1.018243	1.0250423	0.7555412	0.9249834	0.8326972	0.8688383	0.9016296	1.0151753	1.0074897	1.1619319	1.8249726	1.1780268	1.0130287	1.0074897	1.1619319	1.8249726	1.1780268
alpha-1,2-fucosyltransferase	1.0235945	1.1250589	0.8192465	1.1970028	1.0491648	1.081713	1.026357	1.2031074	1.1574273	1.7329871	1.3197215	1.0073321	1.0884932	1.3197215	1.0073321	1.0884932	1.3197215
Phase-1 RCT-138	1.0945646	0.9314339	1.1492808	1.0632489	1.0169164	1.2178202	1.1751393	1.0602157	0.9628277	0.8162262	0.9033532	1.0362072	0.9836006	0.9033532	1.0362072	0.9836006	0.9033532
Phase-1 RCT-295	1.0915766	1.0591547	1.1460077	1.2289376	1.1282351	1.3096403	1.1887378	1.1926766	1.0903615	1.0397259	1.0235218	0.9291124	1.0123069	1.0397259	1.0235218	0.9291124	1.0123069
Phase-1 RCT-164	0.8884169	1.6103895	0.9491044	0.9510998	1.108675	1.086418	1.0234885	1.0161036	0.8595631	0.9874787	1.2462646	1.0845832	1.0548695	0.9874787	1.2462646	1.0845832	1.0548695
Alpha-2-macroglobulin, sequence 2	0.7807344	0.9270099	1.2930678	1.108675	1.149934	1.4756532	1.1781158	1.3615347	0.9387451	1.1979707	1.0411534	1.1966696	1.0773816	1.1979707	1.0411534	1.1966696	1.0773816
Biliverdin reductase	1.0698495	1.8752804	0.8870872	0.878403	0.8443783	0.8642848	0.8713313	0.8988959	0.8743404	0.9281453	0.7719648	0.8344541	0.9179999	0.8743404	0.9281453	0.7719648	0.8344541
Phase-1 RCT-121	0.9692938	0.7650203	0.9704086	0.8816412	0.9401888	0.8713313	0.8988959	0.8743404	0.9281453	0.7719648	0.8344541	0.9179999	0.9454722	0.8743404	0.9281453	0.7719648	0.8344541
Dynamin-1 (D100)	0.9820597	1.028174	1.083004	1.0541253	1.1303124	1.0741636	1.1259383	1.108143	0.9914508	1.1510776	1.0809164	1.1239568	1.1226566	1.1510776	1.0809164	1.1239568	1.1226566
Phase-1 RCT-192	1.008868	0.9559	0.9986191	1.0000541	1.001761	0.9338548	0.905874	1.019838	1.008504	0.9810981	1.0879688	0.9785776	1.0441685	0.9810981	1.0879688	0.9785776	1.0441685
Fatty acid synthase	1.8047425	0.8426885	0.1618168	1.2038574	1.5134054	0.7099712	1.0944338	0.8055874	1.1358415	0.8104605	0.6769782	0.9516899	0.8486658	1.1358415	0.8104605	0.6769782	0.9516899
Phase-1 RCT-211	0.945098	1.1327728	0.9828737	1.0034038	1.0116958	1.1910812	1.0219638	1.1284256	1.034966	0.720474	1.0058984	0.8275955	1.0422662	1.034966	0.720474	1.0058984	0.8275955
Ribosomal protein S9	1.0877843	1.0566663	0.9500865	0.9673258	0.8553261	0.8455143	0.901372	0.8713113	1.1204343	1.2388217	1.087974	1.1528183	1.0246154	1.087974	1.1528183	1.0246154	1.087974
NADP-dependent isocitrate dehydrogenase, cytosolic	1.2778752	1.0223604	1.0136342	1.1031204	1.0662887	1.146447	1.1644455	0.9888127	1.1069328	1.2841554	1.2100265	1.3033149	1.0328835	1.2100265	1.3033149	1.0328835	1.3033149
Phase-1 RCT-57	0.7637273	0.8718218	1.0325911	0.9860407	0.8806884	0.9614054	0.9813607	0.8877051	0.9155392	1.077284	0.963445	0.8185968	1.1366686	0.9155392	1.077284	0.963445	0.8185968
Phase-1 RCT-36	1.2532121	0.9838864	0.8934093	0.9859248	1.0056154	1.0089469	0.9804115	0.9281032	1.0318539	1.0872227	0.9115518	0.8355178	1.0250148	1.0318539	1.0872227	0.9115518	0.8355178
Apolipoprotein AII	0.7360898	1.2430545	1.3157481	1.0944676	1.2097143	1.075308	1.0434442	0.9373969	1.1620625	1.1464187	0.8089844	1.3080562	1.0859542	1.1620625	1.1464187	0.8089844	1.3080562
Phase-1 RCT-68	0.9293349	0.8784613	0.9114007	1.0272478	1.0348718	0.9426987	0.9281483	0.9915881	1.0093551	1.0923129	1.0164886	0.9810907	1.0859542	1.0093551	1.0923129	1.0164886	0.9810907

Multidrug resistant protein-2	0.9653397	1.12779	1.1377316	0.9754929	0.9633454	1.0429456	0.9175316	1.081282	1.1091465	0.9026001	0.9785776	1.2336646	1.0063257
Phase-1 RCT-39	0.9208214	1.2536978	0.914677	0.9883627	1.0218888	1.0389524	1.0357932	1.0591553	1.0928154	0.7602355	0.8697472	0.8912277	0.8912277
NIPK	0.8250896	0.7119982	1.1231472	0.9879691	0.9868385	1.0108471	0.9641562	0.8658386	0.9727841	0.9627853	0.9882058	0.877863	0.8214051
F1-ATPase beta subunit	1.0761766	0.6967244	1.207962	1.2725489	1.1388601	0.9808075	0.9246233	1.0051346	1.0748639	1.3851631	1.1284653	0.9566614	1.0768324
Elongation factor-1 alpha	1.0966891	0.776657	1.5171865	1.090942	0.9250763	1.1917189	1.2584115	1.0715662	0.9564973	1.164818	1.2727289	0.7340248	1.0712153
Phase-1 RCT-24	1.1245849	0.9832859	0.534288	1.2749964	1.0972254	0.9328807	0.9608183	0.824885	0.9540604	0.915866	0.8659056	0.9921758	0.9605437
Beta-tubulin, class I	0.9580033	0.8445971	0.7030647	1.6715432	1.4063606	1.3251086	1.2795447	0.9749195	0.9106388	1.1021557	0.8061521	1.1081484	0.9297447
14-3-3 zeta	0.9539894	1.3249217	0.9819569	1.0519402	0.9655929	0.9173353	0.9650767	0.9463571	0.9783593	0.8363957	0.9333803	0.861092	0.861092
Alpha-prothymosin	0.9504411	0.83332	1.2302432	1.0226015	1.0947631	0.9723582	1.0015087	0.8859322	1.0246893	1.4722672	1.0966276	1.0632248	1.041074
Phase-1 RCT-58	0.8004823	0.761956	0.929265	0.6547442	0.8139954	0.7919478	0.7865201	0.7022509	0.6555761	0.8304284	1.342082	0.6622724	0.7736943
Phase-1 RCT-290	0.6882615	1.1433301	0.5452498	1.1805738	1.4015647	1.4524025	1.000973	1.3968878	0.9578009	0.7802836	1.0189094	1.3923291	1.0433879
Transitional endoplasmic reticulum ATPase	1.0311681	0.9186748	0.8180246	0.9112889	0.9467523	0.8625243	0.9206248	0.8346959	1.0056673	0.8610643	0.8681894	0.938988	0.9148886
Beta-actin	0.8375974	0.6349749	0.7200888	0.9794754	0.9624965	0.7209308	0.9100345	0.8842319	0.6141242	0.9148288	0.6808313	0.6716457	0.9648824
Thioredoxin-1 (Trx1)	1.0708809	1.0597308	1.0389788	1.0937222	1.084297	1.2192958	1.0980989	1.1031772	1.0507365	1.1505437	0.9887829	1.1458477	1.123918
Phase-1 RCT-174	1.1895801	0.6978939	0.6971749	0.9783595	1.1903617	1.0944035	0.9792113	0.9316672	1.0080937	4.0829344	1.0513507	1.1261249	1.1022848
Beta-actin, sequence 2	1.0165978	0.8088965	0.8398964	1.115985	1.0728321	0.9105901	1.1085737	0.8764822	0.9590564	1.1230154	0.8550336	0.8294959	1.0058373
Phase-1 RCT-109	1.3111602	0.9284993	1.23092	1.1025732	1.0458956	1.1411185	1.034442	1.0764173	1.0685482	1.2179714	1.1346881	0.8318904	1.09377
Phase-1 RCT-154	1.0321099	1.2174611	1.0473787	1.0327737	1.0133255	1.0106484	1.0258462	1.0248507	1.0118842	0.770304	0.9202583	0.8544547	0.9885143
Hypoxanthine-guanine phosphoribosyltransferase	1.1704164	0.6971071	0.5713999	0.9353993	0.9272356	0.8806359	0.9180583	0.9007714	1.070054	1.2660183	0.8951604	0.9277091	0.8809908
Phase-1 RCT-213	0.9800039	1.0625151	0.9282232	0.945634	0.8887551	0.8533909	0.9127928	0.9410058	0.7129813	0.8147928	0.8756166	0.8941792	1.1159426
Phase-1 RCT-260	0.8439538	1.0551722	1.0049064	0.9390845	1.000942	1.0496457	0.9733608	1.1895986	1.0886671	0.7245202	0.8100725	1.1078931	1.0498662
Phase-1 RCT-12	0.9714133	0.8833922	0.8158084	1.0937222	1.0796448	1.0088299	0.9871842	0.9041677	0.9879339	1.0224918	0.8728039	1.1242185	0.849498
Phase-1 RCT-293	1.1846547	1.0231245	0.9972728	1.0671238	0.9835391	1.0152738	0.9835391	0.9469374	1.0350567	1.057252	0.9994962	0.9254861	0.9586751
Ribosomal protein S8	0.9083278	0.8816187	1.4034902	1.1939712	1.0925965	1.4658074	1.3369387	1.2824403	1.1084317	1.3354044	1.151473	1.1206317	1.2643255
Pyruvate kinase, muscle	0.9795365	1.1098604	1.0595396	0.9924987	0.9847298	0.988206	0.9653978	1.009956	0.8914515	1.096003	0.9858398	0.8603481	0.9942079
Nucleoside diphosphate kinase beta isoform	0.9711704	0.9890838	0.9304948	1.0779191	1.0760869	1.1468458	1.1303602	1.0217357	0.9865861	1.2511815	1.1061574	1.0548791	1.079027
p53CDC	1.0278332	1.3284277	1.1242343	0.9409784	0.9477683	0.8900981	1.1303602	1.0217357	0.9704976	1.064472	1.1062802	1.0280762	0.8142052
Phase-1 RCT-156	1.0343488	0.7235655	0.7737887	0.8080938	0.9803593	0.7366182	0.8292066	0.797287	1.021052	1.2062861	1.0187809	0.8290314	1.0292593
Ribosomal protein L13A	0.9502254	1.0378235	1.0164381	1.0721039	0.9210273	0.9883407	1.0165827	1.0279016	1.0383962	1.3010004	1.2734498	0.744121	1.1363084
Phase-1 RCT-258	0.9523528	1.056242	1.045369	0.9957103	0.9328811	0.9730806	0.9771791	0.9692429	0.8947266	0.8359459	0.8669459	0.8770107	0.8727984
Insulin-like growth factor I	0.8043357	0.6133407	1.2847318	1.0117508	1.0454576	1.0898242	1.0900186	0.9621049	0.9530124	1.2400184	1.1244339	1.1310556	0.9043822
Cytochrome P450 3A1	0.7451075	1.149356	1.0847957	0.5718945	0.8926976	0.8926976	0.8344487	0.524928	0.8061869	1.1981785	1.3803744	0.9728684	1.9759213
(Ribosomal protein L6)	1.0898438	0.9755232	1.3733717	1.1861062	1.1054885	1.3470138	1.2537519	1.2266048	1.0659791	1.2314149	1.1171018	0.7764008	1.0716673
Organic cation transporter 3	0.9961273	0.957581	1.0185971	1.0618166	1.0012413	0.937331	1.0394182	1.0147967	0.9476784	1.3037317	1.0228802	0.7932868	0.8442906
Calpain 2	1.0350738	1.1147132	1.0518946	0.9833736	1.0251286	1.0840572	1.0319333	1.0121409	1.0182487	0.9264874	0.8069244	0.9687088	0.9093802
Phase-1 RCT-102	0.8127614	1.004695	0.8244487	0.7665125	0.9626114	1.0455753	0.8344638	0.6809449	1.0128818	1.2538557	1.1769068	1.8086313	1.4283689
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.7788224	0.969321	0.9787766	0.7802884	0.8505445	0.9086835	0.9712472	0.8898152	1.0600623	0.5024738	0.9210518	1.5609652	1.127869
Phase-1 RCT-227	0.9545195	1.0028934	1.6356809	0.8443374	0.9942249	1.2770338	1.0197562	1.1365602	1.1072997	1.0235488	0.8866303	0.9211279	1.1616852
N-hydroxy-2-acetylaminofluorene sulfotransferase (S1C1)	0.7299637	0.967945	1.4210889	0.862047	0.8605764	1.0188749	1.0066175	0.8205065	1.111232	0.9387689	0.9969207	1.1862419	1.2212319
Cathepsin S	1.3005396	1.358894	1.1002234	1.1281626	0.8521719	0.9359313	0.9813393	0.8984011	0.916887	0.971998	0.9595612	1.0816596	1.0079842
Apolipoprotein CIII	1.1913982	1.098498	1.1601214	1.0611722	1.0846393	0.9853143	1.060376	1.0749013	1.0996573	1.0785611	0.9906359	1.1209154	1.0829498
Cytochrome P450 2A3	1.0218687	1.1847056	1.6037476	1.6284573	1.421989	1.5378042	1.3848547	1.442365	1.1061027	0.8703686	1.1258904	1.308733	1.0529666
Cytochrome P450 2C23	0.8823921	0.8580037	1.6069746	1.0240436	1.0669886	1.2402129	1.0951457	1.2865385	0.8600432	1.1983066	1.2502862	1.298441	1.064432
Apolipoprotein C1	1.0448488	0.836301	1.4081126	0.9109559	1.2388876	1.1133919	1.2644612	0.9400049	1.0128818	1.2538557	1.1769068	1.8086313	1.4283689
Betaine homocysteine methyltransferase (BHMT)	0.6754579	1.1707598	0.5806452	1.3462048	1.6577872	1.7302208	1.2089865	1.5856814	0.9735513	0.8118014	1.1230943	1.5316919	1.127557
Paraoxonase 1	1.0229881	0.9693084	1.4703928	1.094088	1.0056483	1.102328	1.1463968	1.0956572	1.0778953	1.2665756	1.1269002	1.6534864	1.0833316
Phase-1 RCT-207	0.9799981	1.1787572	0.9604633	0.8475398	0.8722201	0.9198301	0.9132478	0.926191	0.9137513	0.740266	0.8002333	0.9137513	1.0971516
Cathepsin B	1.2132876	1.1002966	0.9751138	0.9449645	0.95901	0.9361655	1.0158442	1.1913154	1.134665	1.218491	1.0528709	1.0558991	1.0558991
Phase-1 RCT-144	1.0335954	1.1303204	0.8637709	0.930825	0.9103247	0.8912724	0.8770263	0.822398	0.9313324	0.6342596	0.7701768	1.0730735	0.846902

Alpha-1 microglobulin/bikunin precursor (Ambp)	1.0749346	0.8684676	1.4168785	0.9743295	1.0036223	1.2586251	1.1350478	1.1717973	1.1122848	1.3361895	1.1243858	1.0291631	1.068309
Cyclin D1	0.8555648	1.2889974	0.8783828	0.9706107	0.8934161	0.7441357	0.8010049	0.7330554	1.0538383	1.1308804	0.7109607	1.0522084	0.8233708
Presenilin-1	0.9261433	0.7013646	2.4946449	1.0347936	1.0921187	1.1766919	1.476416	1.2477536	0.7958772	1.3824917	1.1972228	1.5190413	0.632739
Protein tyrosine phosphatase, receptor type, D	0.8528667	0.7666202	1.5296979	1.2220734	1.351241	1.3898754	1.2396982	1.2858207	0.8321691	1.2941191	1.1313095	1.0255325	0.9460704
Multidrug resistant protein-1	0.9575232	1.2438156	1.0264012	0.9975502	0.9491992	0.9342286	0.844167	0.845842	1.0926293	1.0733273	1.0481701	0.7844509	1.0686489
Cathepsin L, sequence 2	0.854322	1.1255476	1.7994686	1.2189411	0.9833952	1.5287038	1.2191119	1.3154045	0.9835928	1.2360723	1.2360723	0.7192094	1.1580292
JNK1 stress activated protein kinase	1.0360928	1.5768787	1.1641034	1.2140715	1.0559477	1.0565066	1.0244865	1.0505708	0.9557635	0.879944	0.959617	1.3376012	1.0058343
Phase-1 RCT-43	1.0179644	0.7883247	0.7711342	0.8313533	0.9280005	0.8073501	0.8828972	0.7839567	1.0933551	0.8577113	0.8952612	0.9635497	
Tissue plasminogen activator	0.9898228	0.8112518	1.0563409	0.9994006	1.0890807	1.160264	1.0449464	0.991197	0.9720697	0.9204846	0.9429498	0.8974763	0.9061817
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.0489827	1.0326498	0.9574584	1.1049708	0.9590718	1.0135493	1.1601818	1.077435	1.0727031	1.2081362	1.135216	0.9359508	1.0837789
Phase-1 RCT-173	0.9601581	1.1285802	0.8839882	0.8587131	0.8495358	0.8132749	0.914638	0.8473567	0.9479392	0.8149492	0.8953876	1.0026357	1.1799146
Omitline decarboxylase	0.7510849	1.0353023	1.0875288	1.2839751	1.0323347	1.0894148	1.0126099	1.0163472	1.0208577	0.8746011	0.9520629	0.6632879	0.7784073
Zinc finger protein	1.0621114	0.7772508	1.0174272	0.9557721	0.9668986	0.928878	0.9713312	0.9727041	0.9721121	1.0760905	1.2192285	1.0117842	0.9270515
CDK108	0.9379151	1.0730135	1.050448	0.8450586	1.1418248	0.8936621	1.0302818	0.9149389	0.9712633	0.7289048	0.9248371	0.8938471	1.0477105
Phase-1 RCT-117	1.0578613	1.0704767	0.7685138	1.2713028	1.1236485	1.2130892	1.2964944	1.1928191	0.8085395	0.6122218	1.0045476	1.1465044	1.0854017
Phase-1 RCT 98	1.0768235	0.9978244	0.9214799	1.0087038	1.1265427	1.0445516	0.9017636	0.8315904	1.0122821	1.033152	1.0543478	0.9862849	1.0005755
Aquaporin-3 (AQP3)	0.9640191	1.1486506	1.0444683	0.9919807	1.0231365	1.1368027	0.9938931	0.9811956	0.9695901	0.836264	0.7889617	1.0032977	1.0756328
Cholesterol esterase	0.5712329	0.7498476	0.9033673	0.7826392	0.7167876	0.7103688	0.7243522	0.7099956	0.8302856	1.263695	1.1915089	0.9991221	1.5601908
Poly(ADP-ribose) polymerase	1.0553744	1.2943661	1.197898	1.0435541	1.4560019	1.2186142	1.2211833	1.0568415	1.4102987	1.1405907	1.2287242	1.2323712	
Ribosomal protein S17	1.0469425	1.0480837	0.9499108	1.0371351	0.9419241	0.9288185	0.8701974	0.9673397	1.0195795	0.9571172	0.9440342	1.0779487	0.9688042
Annexin V	1.0256557	1.2780578	1.0252572	1.0498611	1.0983944	1.0088098	1.2371365	1.055313	1.0171762	1.1202319	0.9440342	1.0779487	0.9070295
Phase-1 RCT-33	1.2829282	0.9347703	1.1695337	1.0372019	1.0662652	1.2061621	1.2502358	1.0314063	1.5454814	1.1695089	0.9342178	0.7572409	1.1449175
Phase-1 RCT-61	0.8830337	0.8314152	0.8714634	0.7508536	0.7276457	0.784723	0.7854787	0.7959882	0.9535277	0.7632893	1.110932	0.8688541	0.8724763
Retinol dehydrogenase type III	0.8386483	0.8469104	1.2202016	1.0016595	1.2845176	1.2116562	1.2837799	1.1433929	1.0527871	1.4302661	1.1108997	1.3924258	1.1378103
ATPase inhibitor (rat mitochondrial F1 protein)	0.8135107	0.8031195	1.2223543	0.9466059	1.1070601	1.1604106	1.0866631	0.862553	0.9990029	1.4762821	1.2506695	2.2521565	1.3711991
Thymidylate synthase	1.0203449	1.4427062	0.9357413	0.8976455	0.8756298	0.865236	1.0292015	0.829954	0.9011162	0.8049884	0.9710732	1.0627308	0.874877
Interleukin-18	1.0663818	1.4086789	1.0021391	1.0702274	0.9685504	0.9134071	1.0279415	1.0931541	0.9679889	0.7344749	0.8963442	0.8594095	0.7570748
Lecithin:cholesterol acyltransferase	1.056267	0.8332773	1.2776018	1.0591547	1.0402077	0.9513619	0.9421642	0.8398013	1.1725365	1.3841053	1.2129834	0.7946356	1.1578763
Contrapsin-like protease inhibitor (CPI-21)	1.0199839	0.8037959	2.2176886	1.3732824	1.0827336	1.0502637	1.086784	1.1902823	1.1238031	1.4602567	0.8386882	0.8563817	1.1567502
Proliferating cell nuclear antigen gene	1.0227515	1.7992764	0.8703236	0.8282647	0.763534	0.7201998	0.7894818	0.7692519	1.1033107	0.8094212	0.9073158	1.0954688	0.9429589
Phase-1 RCT-230	0.9578018	1.2270108	1.1312366	1.2040787	1.0498688	1.2032307	1.2283743	1.2947855	1.0717218	0.7552124	0.8327724	1.0256019	0.8840903
Cytochrome P450 2D18	0.6709738	0.874136	1.000943	0.8780153	0.8756053	0.9324529	0.8937326	0.8264161	0.899554	1.3008807	1.051871	0.7487723	1.1203245
Phase-1 RCT-48	0.9781727	0.9202653	0.9513553	0.9663891	1.1536391	1.1362822	1.081672	1.1627553	0.932285	1.2133005	1.0503718	1.3568977	1.0885528
Phase-1 RCT-292	1.0548565	0.9964079	1.1374984	1.0336142	1.0442388	1.2079695	1.1585839	1.1014278	0.9429355	0.8639979	0.8631222	0.9229884	0.8785528
Argininosuccinate synthetase 1	1.2036483	1.0964788	1.559113	1.2057738	1.3022742	1.5539439	1.4795187	1.443463	1.0584373	0.9478664	1.1428969	0.7020371	0.8180883
C-reactive protein	0.8748393	0.8203487	1.6992137	1.248308	1.1149913	1.3362287	1.1921577	1.2123493	0.9115635	1.4404095	1.2561878	1.0756483	1.0535443
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 hr: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint															
(1)															
Compound-Dose	GEN 150	HYD 1000	HYD 250	HYD 500	HYD 1000	HYD 1250	HYD 250	HYD 500	HYD 1000	HYD 1250	HYD 250	HYD 500	HYD 1000	HYD 1250	HYD 250
Animal Number	439	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Liver Toxicity Necrosis Classification	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name	1.0705161	1.300669	1.1093574	1.2242782	1.0988606	1.074457	1.0242808	1.0941331	0.9679047	1.0258203	1.0558898	1.2330841	1.157032	1.2330841	1.157032
Osteocalcin	0.7342157	1.0309323	1.1323954	1.0455275	1.1606138	1.0988553	1.0488884	1.0471414	0.8206693	0.8764895	0.9541889	0.9492639	1.0048642	0.9492639	1.0048642
Statmin	0.9582918	1.112144	1.0864811	1.0554715	1.0851771	1.189245	1.2191828	0.8461877	0.8057514	0.8669713	0.9309067	0.8633696	0.8508245	0.8633696	0.8508245
Calpain I heavy chain	0.9146382	0.9676533	0.8949899	0.9622825	0.9979798	0.9366188	0.8456666	0.9627151	0.8735591	0.9494024	0.9629125	0.859571	0.931163	0.9494024	0.9629125
Phase-1 RCT-107	0.7814109	0.9463022	0.9288526	0.9238539	0.9724597	0.8333028	1.0299149	1.0104604	1.0258583	1.1820911	1.1931278	1.0208343	1.0351357	1.1820911	1.1931278
Phase-1 RCT-179	0.9439424	1.23296042	1.322709	1.3939224	1.1699336	1.2367092	1.48297	1.0470786	0.9709157	1.0647852	0.7914852	0.9820598	0.8776706	1.0470786	0.9709157
Heme oxygenase	0.7355987	0.8935058	0.8971446	0.8841631	0.8022246	1.069336	1.0653354	0.8514542	0.7143802	0.8940364	0.6746154	0.6951712	0.5613089	0.8940364	0.6746154
Collagen type II	1.0076668	0.9798661	0.9433954	1	0.9619154	0.9796673	1.0065745	1.510758	1.0398685	0.9800444	0.9978403	1.030735	1.0455397	1.0398685	0.9800444
Phase-1 RCT-81	0.8396564	0.8764489	0.7574071	0.6475878	0.9352296	0.4653186	0.8855225	0.9199653	0.8889966	1.6872816	1.8633434	1.1439337	0.8867357	0.8889966	1.6872816
Glycine methyltransferase	0.8694426	0.9023272	0.9862825	1.1459326	1.0246291	1.1243123	0.9065915	0.8704144	0.7026129	0.904734	0.6879881	0.8251435	0.8517996	0.904734	0.6879881
Cystatin C	0.885447	1.6418222	1.108302	1.0918578	1.161511	1.3533549	1.1491184	0.9480044	0.8570867	1.1711934	0.8710998	0.8918388	1.0510613	1.1711934	0.8710998
Melanoma-associated antigen ME491	0.7550023	1.2429338	1.7868428	1.4474351	1.4390094	1.7573133	1.359435	1.0046166	1.0213746	1.0009739	0.912666	0.8918388	1.0510613	1.0046166	1.0213746
Phase-1 RCT-146	0.9408523	1.0951501	1.0090821	0.8560529	1.039812	0.9724654	1.0166988	1.1537331	1.0010753	0.7059661	0.9812565	0.7499938	0.818252	1.0010753	0.7059661
Gammacellin, cytoplasmic	0.8792793	0.8600288	0.7245378	0.7069881	0.9453445	0.9343067	0.8345177	0.4728931	0.8471915	1.0671715	1.0459778	0.8303151	0.8290003	0.8471915	1.0671715
Adenine nucleotide translocator 1	0.9837859	0.7099458	0.7673897	0.7564925	0.8852008	0.6434059	1.0443328	1.0073394	1.0590205	1.0082982	1.2535574	0.8298702	0.9194508	1.0590205	1.0082982
Thymosin beta-10	1.3272628	1	0.7673897	0.7564925	0.8852008	0.6434059	1.0443328	1.0073394	1.0590205	1.0082982	1.2535574	0.8298702	0.9194508	1.0590205	1.0082982
Insulin-like growth factor 1, exon 6	1.0066952	1.0979191	1.0345168	1.093253	1.0050827	1.1207822	1.0809106	1.022914	0.9050514	0.9899789	1.0097678	0.9099597	0.7275024	0.9899789	1.0097678
Phase-1 RCT-78	1.1380059	0.8494808	0.5051327	0.6881037	0.6943252	0.3610158	0.3978469	0.7553653	0.3552694	1.007772	0.752263	0.4818663	0.7275024	0.7553653	0.3552694
Alpha-2-microglobulin	1.0210228	1.241382	1.0401264	1.1576936	1.1004995	1.1622772	0.9225797	0.8743648	0.888899	0.9021323	0.8888586	1.0194733	1.0120776	0.888899	0.9021323
High affinity IgE receptor gamma chain (FcεR1gamma)	1.0160515	0.9298418	0.8667292	0.8980959	0.9355661	0.5710954	0.5378537	0.8244419	0.8330619	0.7715231	0.810666	0.8173761	0.8676343	0.8330619	0.7715231
60S ribosomal protein L6	0.8563736	1.0056298	1.1557008	1.1946119	1.0742906	1.0637853	1.1314516	0.857666	0.8586784	0.9134148	0.87703	0.8575555	0.8676343	0.8586784	0.9134148
IgE binding protein	0.951236	0.958141	0.825343	1.0747501	1.0480634	1.1077769	1.0507634	1.0344175	1.1792209	1.112184	1.0198287	1.0465854	1.0198287	1.1792209	1.112184
Phase-1 RCT-149	0.9878716	0.9149127	0.7610223	1.1643682	1.3231387	1.5715137	1.4269174	0.7825109	0.8615817	0.8959948	0.7627285	0.8309621	0.8831849	0.8615817	0.8959948
Cytochrome P450 2C11	0.7531481	1.0439873	1.0613145	1.1099236	0.9906051	1.1245694	1.0282019	1.0368588	1.0065967	1.1526465	1.0611308	1.0439643	0.9004821	1.0368588	1.0065967
Uncoupling protein 2	0.9575366	1.3573351	0.9450323	1.0956489	1.1438875	1.1218064	1.0201671	1.0301483	0.9227098	0.8201845	0.8973793	0.6881554	0.7486613	1.0301483	0.9227098
Collin	0.6678408	0.7618216	0.8915101	0.7903025	0.8947382	1.0067128	0.851471	0.7593956	0.8765973	0.8201845	0.8973793	0.6881554	0.7486613	0.7593956	0.8765973
Alpha-tubulin	0.9577755	0.3847899	0.3819303	1.3667542	1.040593	0.4773804	0.5074708	0.878129	1.4761044	0.7941261	1.91457	1.6175625	0.9338408	0.3819303	1.3667542
Stearyl-CoA desaturase, liver	1.1383275	0.807542	0.8154615	0.878427	0.9647585	0.8230969	0.6925479	0.925329	0.8431193	0.7874799	0.9914954	0.9041769	0.8689092	0.807542	0.8154615
Glutathione S-transferase theta-1	1.0543368	0.5895538	0.9435945	0.8774352	0.5794762	0.6103986	0.629275	1.4017379	1.0546166	0.8498441	1.208795	1.086963	1.1218169	0.9435945	0.8774352
alpha-1,2-lucosyltransferase	1.0115153	1.077148	0.8472488	1.056592	1.0885966	0.8309851	0.9155292	0.9251018	0.8960284	0.8476354	1.1109831	1.0746642	1.0256257	1.077148	0.8472488
Phase-1 RCT-138	1.0426207	1.0944687	0.9621643	1.0423484	0.9729955	0.8437638	0.9682278	1.0424485	0.9891527	0.9927566	1.089727	0.8760979	1.1326138	1.0944687	0.9621643
Phase-1 RCT-295	0.8434994	0.9253251	1.0156665	0.8537649	1	1.000542	1.020412	1.0390987	1.0663508	1.0163997	1.0821102	1.0977409	1.047336	1.0156665	0.8537649
Phase-1 RCT-164	1.0200013	1.1886884	1.2751654	1.3156694	1.0122751	1.0121809	1.1464114	0.9431298	0.9449178	0.8953831	0.9252971	0.8815969	0.8839033	1.2751654	1.3156694
Alpha-2-macroglobulin, sequence 2	0.9163266	1.1232477	1.3848731	1.0694534	1.112238	1.3168821	1.1545552	1.050083	0.9834974	0.9461063	1.0203062	1.0208349	1.0866367	1.3848731	1.0694534
Biliverdin reductase	0.6518759	1.0824646	1.2389818	1.1590191	1.2677963	1.1718961	1.1840235	0.9899448	0.9847179	0.9946247	0.9484252	1.0323154	0.9394553	1.2389818	1.1590191
Phase-1 RCT-121	1.0708693	0.9648704	1.0206808	1.163745	1.0504559	0.953786	0.9046612	0.9886144	0.9982142	1.0112592	0.9614385	1.0309278	0.9937413	1.0206808	1.163745
Dynamin-1 (D100)	1.0842748	1.1126225	0.8604381	1.0432427	0.9470066	0.8082399	0.7577254	0.9816001	0.9577834	0.9520295	1.014138	0.9570782	0.9630659	1.1126225	0.8604381
Phase-1 RCT-192	0.7286815	1.07196854	0.8887082	1.207868	1.0613443	1.221173	0.9523765	0.9873084	1.772227	0.8383288	1.5224847	1.1625149	0.754391	1.07196854	0.8887082
Fatty acid synthase	1.0191344	0.6959946	0.8846728	0.843048	0.7648602	0.6156802	0.7674581	1.1589959	1.0879102	1.3417999	1.4415596	1.2129091	1.3378177	0.8846728	0.7648602
Phase-1 RCT-211	1.05061	1.0007952	0.7598133	0.9280862	1.0048872	0.9287631	0.8370051	0.9103035	0.8104092	0.8356946	0.8121683	0.8050262	0.8423166	1.0007952	0.7598133
Ribosomal protein S9	1.1423898	0.9780203	0.8949908	1.0924201	1.0057421	0.932247	0.9817763	0.9637404	1.1173693	0.8410283	1.0912653	1.0364336	1.0133083	0.9780203	0.8949908
NADP-dependent isocitrate dehydrogenase, cytosolic	0.9155448	0.9207568	1.039169	0.8592768	0.930431	1.575717	1.2086212	1.0879842	1.0139323	1.0450219	1.059038	1.0275029	0.9689808	0.9207568	1.039169
Phase-1 RCT-57	1.046465	0.886386	0.9193174	1.0282153	0.9640654	0.9370874	0.9895666	0.9688776	0.967136	0.9370335	1.1376665	1.018274	1.0370675	0.886386	0.9193174
Phase-1 RCT-36	1.0794365	0.3170188	0.5807542	0.8931565	0.5094268	0.2505194	0.4602235	0.7558178	0.8997209	1.0624883	1.7874542	1.3501084	1.062449	0.3170188	0.5807542
Apolipoprotein AII	1.0318122	1.1973742	1.0930483	1.1457831	1.1328951	1.1988752	1.1232314	1.0234134	1.0023066	1.0443586	1.1055884	1.0512122	1.1094847	1.1973742	1.0930483
Phase-1 RCT-68															

Table 36

Multidrug resistant protein-2	0.9693445	1.0331792	1.0446156	0.8116767	0.7209227	0.8766241	1.0517021	0.9513398	1.0366532	1.0207151	0.9878545	0.9300833	1.1164813
Phase-1 RCT-39	0.8344957	1.0144525	0.9531245	1.0823902	0.9539566	0.7812121	0.897521	1.0055455	1.0469059	1.070373	1.0431736	1.054677	1.1178517
NIPK	1.0315771	1.0708061	0.9756346	0.9899865	1.0128294	0.751258	1.0942725	1.0335556	1.0804247	1.0910281	1.1529243	0.9420178	1.0485353
F1-ATPase beta subunit	1.1208291	0.8803245	0.8843047	0.8617542	0.8648095	0.7337955	0.8148158	0.9277171	1.0489725	1.0602832	0.9859331	0.9698805	0.8968875
Elongation factor-1 alpha	1.2102404	0.8442539	0.8618974	0.8179432	0.843641	0.8618712	0.8684428	0.924074	1.0499499	1.1215204	0.9755131	0.9609393	0.8204778
Phase-1 RCT-24	0.9708305	1.1868398	0.9318054	0.9470011	0.866812	0.8879958	1.0590435	1.3424087	1.924087	1.1582874	1.417487	1.0491544	1.085146
Beta-tubulin, class I	0.8900703	1.264087	0.968064	1.22812	0.9561493	1.1444376	1.444376	1.0025386	1.043877	1.107657	0.9511764	0.9301774	1.0079476
14-3-3 zeta	0.9297708	1.1434763	0.89793	0.9347163	1.0358732	1.4008547	0.8804871	1.0025386	1.043877	1.107657	0.9511764	0.9301774	1.0079476
Alpha-prothymosin	0.9847774	1.0450599	0.8600683	0.9994018	1.0737402	0.7783665	1.0821605	0.8412436	0.8699465	0.9699465	0.7400108	0.8766198	0.701488
Phase-1 RCT-58	1.0272071	0.497419	0.4904625	0.6650732	0.4649202	0.3996176	0.4314632	1.3714343	1.3714343	1.3714343	1.3714343	1.3714343	1.3907024
Phase-1 RCT-290	0.9881342	0.8091722	0.9156399	1.1610914	0.9130394	0.663329	0.9352207	1.0325769	1.1051288	0.8045534	1.3600566	1.1024619	0.9654473
Transitional endoplasmic reticulum ATPase	0.7842943	1.236915	0.9908237	1.1144913	1.1912084	1.156463	1.0826335	0.8119853	0.8339627	0.7378725	0.7803044	0.683457	0.7242665
Beta-actin	0.9048969	1.0145978	0.8956613	0.7530984	1.0266814	0.7023559	0.8076389	0.6619132	0.9554987	0.9031118	0.9422733	0.8682089	0.8527157
Thioredoxin-1 (Trx1)	0.9818216	0.9011136	1.0546635	1.087984	0.8606956	0.7110368	0.7052043	0.8456693	0.7747933	0.9031118	0.9422733	0.8682089	0.8527157
Phase-1 RCT-174	1.0045234	1.0318487	0.9567832	1.0553787	1.0509667	1.0386832	0.9488115	0.9506312	0.9919289	1.007697	0.9635081	0.9861503	1.0293441
Beta-actin, sequence 2	1.0573671	1.1173711	0.8777658	0.9737741	1.0412716	0.858004	0.9434004	1.0977262	0.9180874	0.9398162	1.1354617	0.8480184	0.8001889
Phase-1 RCT-109	1.0472778	0.7350944	0.8414477	0.9411005	0.7544769	0.6282281	0.6484602	1.0490971	1.0361731	1.1718973	1.2314739	1.1811662	1.027188
Phase-1 RCT-154	0.6978671	1.0714726	1.1690426	1.1594939	1.0921053	1.53607	1.0777661	1.019525	0.9633005	1.0217227	1.2451965	1.0335827	1.1074816
Hypoxanthine-guanine phosphoribosyltransferase	0.8615011	0.9291766	0.7986246	0.9335969	0.8972337	0.8776358	0.8295425	0.8997778	0.8617771	0.838232	1.009886	0.9023998	0.866088
Phase-1 RCT-213	0.8762766	1.0652933	1.096374	0.9720342	1.2430694	1.1789044	1.0412879	1.0579875	0.9639002	0.9488586	0.904472	0.9454624	0.9607037
Phase-1 RCT-280	0.839786	0.9330619	1.0695688	1.0365821	0.9856951	1.2027014	1.0333705	0.9485223	1.0285974	1.0204093	0.974081	1.0404209	1.0294106
Phase-1 RCT-12	0.9043849	1.0740346	0.9139475	1.1269006	1.0064938	0.9739018	0.9367859	1.0749242	1.1955858	1.1723201	1.2898413	1.0430565	1.1001389
Phase-1 RCT-293	1.0032208	1.0191917	1.0584232	1.1598872	1.1019789	1.0956976	0.9303665	0.7235581	0.7731156	0.8644681	0.7916715	0.8300292	0.8398778
Ribosomal protein S8	1.0396814	1.054328	1.0024048	1.0336319	0.776548	0.8203899	0.7555876	0.8694284	0.7598106	0.836594	0.9259987	0.7863433	0.8520291
Pyruvate kinase, muscle	0.9557056	0.9364871	0.9380005	1.0635214	0.8996353	0.8894374	0.8797815	0.6475626	0.7689531	0.9072191	0.741921	0.7310942	0.6376267
Nucleoside diphosphate kinase beta isoform	1.0521227	1.0763149	0.8027196	0.9548351	0.9144136	0.8863588	0.8564013	0.9999408	0.9271206	0.9048863	1.0934058	1.0649682	1.0173595
p55CDC	0.9878539	0.9070496	0.9113011	0.839082	0.8565332	1.2296114	1.146927	1.095568	1.0924687	1.0393854	0.8571633	1.0650216	1.1131505
Phase-1 RCT-156	1.0655539	0.8991171	0.9765295	0.9749834	0.9709083	0.8372231	0.9805177	0.9820789	0.923981	0.9336678	1.0422528	0.9607407	0.9253122
Ribosomal protein L13A	1.208862	0.8014152	0.9062606	0.9153389	0.7134299	0.6314735	0.6709577	1.0341544	1.0569301	1.1029173	1.2782404	1.156323	1.0607251
Phase-1 RCT-258	0.6802109	0.9862202	1.0386224	1.0192339	1.1290688	1.080005	0.9728178	1.0336838	0.9713649	0.9734281	1.0544912	0.9571176	0.9854663
Insulin-like growth factor I	1.3602372	0.9555663	0.8262244	0.765341	0.7733741	0.6923794	1.0084598	0.8667726	0.8975891	0.9043528	1.0466582	0.7569514	0.8419566
Cytochrome P450 3A1	1.3683447	0.996496	0.700127	0.7000693	0.864153	0.6072736	0.5521326	0.6074691	0.2627881	0.9259898	0.7428078	0.6627016	0.692426
(Ribosomal protein L6)	1.138266	0.9107056	0.9052654	0.9551622	0.7881563	0.805965	0.8612535	0.9128651	0.8736293	0.9020028	0.9734075	0.8585119	0.9200934
Organic cation transporter 3	0.7115037	0.9053843	0.8399712	0.92343	0.9669904	0.8600988	0.8526347	0.9058525	0.9200178	0.9398762	0.8637668	0.8576839	0.8247593
Calpain 2	1.0221417	1.0837089	1.1158221	1.1024748	0.9868404	1.0478652	1.0083041	0.9354279	0.830866	0.8250379	0.8858175	0.8997908	0.958073
Phase-1 RCT-102	0.9555004	1.1837685	0.8806973	0.8321493	1.0281234	0.9133582	1.1610223	0.7452305	0.715695	0.9178815	0.8328143	0.8189949	0.8084213
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	1.0570862	1.0043843	0.9200387	0.9421167	0.913637	0.8124979	0.7243218	0.8760834	0.6067709	0.9293877	0.9483846	0.7854004	0.8127988
Phase-1 RCT-227	1.0080024	1.0966179	1.054566	1.1679405	1.0021831	0.8244369	0.8428804	0.8452017	0.6879852	0.7648892	0.7551345	0.8446278	0.7441726
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	1.1463763	1.0180728	0.9005282	0.9083827	0.880648	0.7773909	0.6957301	0.7281053	0.4432393	0.8887842	0.82286	0.8327085	0.7273149
Cathepsin S	1.0423189	1.0871462	0.9866126	0.8774834	0.746973	1.0572885	0.8934793	0.7789674	0.7910013	0.87187	0.7136519	0.8181002	0.7940272
Apolipoprotein CIII	0.8656471	0.8024046	0.8023034	0.9327446	0.9351466	1.0513904	0.8086248	0.8670763	0.7750191	0.8804393	0.9071093	0.8639609	0.7635312
Cytochrome P450 2A3	0.973798	0.6384148	1.4727916	0.9372354	1.3322848	0.8461095	0.727293	0.9827328	1.1304233	0.862746	0.9418672	0.981898	1.0172508
Cytochrome P450 2C23	1.1463947	0.9439095	1.0327848	0.965458	0.8484219	0.9080404	0.9366972	0.7014574	0.9363605	0.7014574	0.9870718	0.9373009	0.8688826
Apolipoprotein C1	1.018908	0.850643	0.8933684	0.8825981	1.159985	0.9044399	0.7444707	0.7063373	0.7624822	0.6828909	0.8233021	0.8432644	0.7406676
Betaine homocysteine methyltransferase (BHMT)	1.062888	0.4967659	0.6175002	0.9272843	0.7573558	0.4306027	0.7858358	1.1479098	1.0800139	0.7808873	1.8948418	1.1372718	0.8495852
Paraoxonase 1	1.078891	1.0519454	1.0505798	1.0020653	0.8680581	0.9207841	0.7604672	0.707365	0.6792337	0.6259528	0.6758706	0.6506668	0.6122415
Phase-1 RCT-207	0.8690403	0.9151627	1.0355797	0.9910525	1.0285404	0.9848231	0.8956582	0.9327527	0.9542062	0.9852722	0.9452741	0.8719889	0.890065
Cathepsin B	1.1175225	0.9110707	0.9515519	0.8663336	0.8572992	0.8043236	0.8637895	0.956978	0.8789062	0.9187116	0.9879062	0.9187116	0.9362271
Phase-1 RCT-144	0.8257756	1.1728516	1.0865451	1.2078208	1.1315463	1.3394553	0.8328331	0.9422835	1.3572382	0.9985572	0.8841462	0.8861185	1.0560048

Alpha-1 microglobulin/bikunin precursor (Ampb)	1.0268582	0.9666763	0.9265816	1.0114069	0.9575377	1.0158962	0.9766012	1.0374234	0.9097115	0.9424318	0.9742202	0.9395552	0.900801
Cyclin D1	1.1047227	1.2019799	1.0112745	0.8371793	1.3274584	1.8547151	1.420534	0.7035454	0.8343072	1.14128	0.6956369	0.589191	0.9230228
Presenilin-1	1.5125183	1.015638	0.8797813	0.9871894	0.9209028	0.9184654	0.7253884	0.8581215	0.8911779	0.7849398	0.3221889	0.9363553	0.7813825
Protein tyrosine phosphatase, receptor type, D	1.0744388	1.1953216	1.2395912	1.038154	1.035803	0.9628901	1.1984022	1.0696431	0.852864	1.0990187	1.0684397	1.0076797	0.8182588
Multidrug resistant protein-1	1.0062871	0.9899074	1.0520599	0.7876397	0.8503421	0.9569328	1.0288575	0.9176638	1.0657707	1.0486104	0.8916098	0.9714757	1.1281227
Cathepsin L, sequence 2	1.0813105	0.9960887	0.8543442	0.830362	0.7371735	0.7046767	0.891625	1.0332272	1.1328306	1.0894858	1.2427462	1.209449	1.0498924
JNK1 stress activated protein kinase	0.9202016	0.7070149	0.9665416	0.818163	0.7825006	0.8703184	0.9933229	1.0189972	1.1024592	0.9271039	1.1132449	1.2010715	0.8341255
Phase-1 RCT-43	0.8576198	0.8352377	0.8190164	0.9048715	1.0101801	0.8081096	0.9284086	1.0157189	1.0228528	1.0258308	1.1136147	0.998307	0.8720063
Tissue plasminogen activator	0.9612001	1.0360544	1.1548795	1.1202401	1.0666278	1.330673	1.1806129	0.9744575	0.9928303	1.0137897	1.0397718	0.964039	0.9932222
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.0096983	0.8966788	0.7407783	0.8526225	1.036951	0.8965784	0.8620674	0.9731624	0.9887661	1.0050666	0.8187173	0.9174989	0.9115771
Phase-1 RCT-173	0.904216	0.7594053	0.9390757	0.9259988	0.8700977	1.0101525	0.7608692	1.0390466	0.8508195	1.061977	0.9898864	1.0957845	0.9550176
Omitthine decarboxylase	0.9702193	1.2240186	1.023057	0.9595559	1.2010803	1.1688957	1.131591	1.1596043	1.3319784	1.1275884	0.996988	1.053503	1.0835971
Zinc finger protein	0.7188853	0.8969652	1.1714935	1.0335448	0.922017	0.9519292	0.9519292	1.0489175	0.9655274	0.9345885	1.0335797	1.095715	0.9780173
CDK108	0.9837002	0.7666991	0.9461453	0.9475619	0.8451484	0.7459991	1.3644282	0.8735575	0.7728984	1.1875488	1.1439147	0.9134342	1.1014509
Phase-1 RCT-117	0.887525	0.9577426	0.8768188	1.1142853	0.8802534	0.8187872	0.9276572	0.9271666	0.7510801	0.7196028	1.0301169	0.8816978	0.9008879
[Phase-1 RCT 98]	1.057966	1.015492	0.9973239	1.167825	1.131845	1.1816576	1.1931558	1.007516	0.9938309	0.9800997	0.9369493	1.009007	1.0517182
Aquaporin-3 (AQP3)	1.022894	1.1409945	1.1308035	1.300238	1.1356637	1.234099	1.0903064	0.928153	0.9089907	0.9218355	0.8866746	0.9215233	1.0280287
Cholesterol esterase	1.2475002	0.848534	0.701579	0.5969587	0.6211327	0.5944177	0.5208119	0.7044753	0.5281908	0.894319	0.7069235	0.6289354	0.7485949
Ribosomal protein S17	1.2027469	1.1960557	0.9965687	1.1602547	0.9483621	0.9077254	0.8662642	0.9332551	0.8484786	0.835553	1.0126443	0.8995363	0.8781899
Poly(ADP-ribose) polymerase	0.8038477	1.0409384	0.9682379	1.0731474	1.0832943	1.2128718	1.0137104	1.060549	1.0054917	0.9130634	0.8984202	0.9887846	0.987048
Annexin V	0.9801698	0.9303072	1.0046785	0.8106929	0.9115061	1.1633969	1.0547216	0.8947868	0.8525893	0.8623068	0.7916028	0.7947308	0.9020819
Phase-1 RCT-33	1.2658854	0.7983656	0.8248606	0.8898898	0.8739635	0.7029713	0.8779658	0.9710714	1.0277582	1.5780809	1.1403052	1.0328968	
Phase-1 RCT-61	0.9087172	0.8112056	0.9159605	0.9408976	1.2719415	0.9458501	0.9218224	0.9582841	1.020843	1.0148237	1.0630497	0.9847362	0.9493533
Retinol dehydrogenase type III	1.1073469	0.8995601	0.8223198	0.9018394	0.9007297	0.7441775	0.9208385	0.9683572	0.9003831	1.2663201	1.2804768	1.1973193	1.073542
ATPase inhibitor (rat mitochondrial IF1 protein)	1.2704374	1.0680581	0.8029156	0.9523318	0.8698847	0.7562925	0.7984131	0.7607908	0.615904	0.8028833	0.9046512	0.7828868	0.7260789
Thymidylate synthase	0.7541774	1.1158939	1.1392577	0.9414575	1.0206054	1.5106309	1.3221132	1.0580801	0.9668828	1.052848	0.9295431	1.0619593	1.0833392
Interleukin-18	0.5600268	1.1765939	1.3787025	1.1638584	1.3401647	1.550532	1.3725853	1.0688611	1.0316687	1.0103312	0.8878772	1.034151	1.037163
Lecithin:cholesterol acyltransferase	1.1617441	0.8564058	0.7780029	1.012961	0.8439493	0.7443656	0.8112187	1.0344454	1.0954385	1.0680887	1.3465626	1.0573995	1.2002894
Contrapsin-like protease inhibitor (CPI-21)	1.1353345	1.2914234	0.9508278	0.9879451	0.8671765	0.9347477	1.2791157	1.040957	1.0822784	1.3116168	1.2504214	1.2221587	1.0620314
Proliferating cell nuclear antigen gene	1.0088004	0.9653844	1.2828955	1.0001093	0.8472914	1.5824833	1.1940879	0.9705562	0.9651532	0.9481137	0.8768196	1.0670022	1.0276155
Phase-1 RCT-230	0.780529	0.9780446	1.2130462	1.1968086	0.8884104	1.0774236	1.0567791	1.1082714	1.1082396	1.116379	1.1287479	1.0908312	
Cytochrome P450 2D18	1.0004123	1.0882052	0.7884631	0.7790595	0.7965286	0.8764784	0.8483089	1.0396953	1.0169067	1.1710697	1.3653011	1.071593	0.8795382
Phase-1 RCT-48	1.1428002	0.9378542	1.0588995	1.107826	1.2504753	1.0207504	0.9519075	1.0902524	1.0382491	1.2664733	1.1952866	1.0464191	0.8111628
Phase-1 RCT-292	1.0196528	1.0107579	0.8878227	1.023988	1.1535336	1.178217	0.9330547	0.9404624	0.9964328	1.0012602	0.9479887	1.1120521	
Arginosuccinate synthetase 1	1.053717	0.5870425	0.8149675	0.9274749	0.9363518	0.6384552	0.8824444	1.1266195	1.3714807	1.09294	1.9927161	1.3875583	1.0181397
C-reactive protein	1.1578852	1.0432535	1.0087737	0.8036276	0.8104883	0.9924637	1.0412433	1.0920905	0.8748298	1.122543	1.0523262	1.0521997	0.8256616
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint														
(1)														
Compound-Dose	KETO 20	KETO 20	KETO 20	KETO 80	KETO 80	KETO 80	KETO 80	LPS 2	LPS 2	LPS 2	LPS 2	LPS 8	LPS 8	LPS 8
Animal Number	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240
Liver Toxicity Necrosis Classification	no	no	no	no	no	no	no	no	no	no	no	yes	yes	yes
Gene Name	no	no	no	no	no	no	no	no	no	no	no	yes	yes	yes
Osteocalcin	1.0618103	1.1725651	0.9697954	1.0082295	1.0405092	0.9704399	1.1489738	1.1109719	1.073597	1.8118702	1.4074453	0.8607398	0.9978561	0.9978561
Stathmin	1.0357677	1.0036066	0.9932861	0.9886286	0.9606619	1.128814	0.9267383	1.1438521	1.0191717	1.3550336	1.2493936	0.9319118	0.8905404	0.8905404
Calpastin heavy chain	0.9951863	0.9293908	1.063281	1.0167895	1.0108827	1.0960058	1.0108827	0.9878622	1.1768284	1.0583588	1.8322118	1.1698265	1.0355558	1.0355558
Phase-1 RCT-179	1.0872673	1.0847617	0.8997114	0.8990919	0.903918	0.8255838	1.1276257	1.0281196	1.2718953	1.1947807	0.7719866	0.7719866	0.7719866	0.7719866
Phase-1 RCT-107	0.6416078	1.0320272	1.1648693	0.7578985	1.0401232	0.7761124	0.8659257	1.6675018	1.318598	1.0718642	1.094159	0.8031592	0.8031592	0.8031592
Heme oxygenase	1.0053705	1.2504977	0.9827848	1.0163479	0.803906	1.2070799	0.8551037	1.2530507	1.032837	1.2870758	3.4576108	0.9956706	1.008816	1.008816
Collagen type II	1.2328186	0.7751147	0.8523824	1.1090308	0.9010714	1.2375642	0.8362852	0.9289761	1.0545126	0.728508	1.0568056	1.2989204	1.2989204	1.2989204
Phase-1 RCT-81	1.0603262	1.0843357	0.9960311	1.0407624	1.0110196	0.8786756	1.2623347	0.8362852	0.9289761	1.0545126	0.728508	1.0568056	1.2989204	1.2989204
Glycine methyltransferase	0.5330267	0.9902627	1.1902028	0.8897563	1.0768687	0.6140596	0.3518358	2.5294402	1.986608	1.2850665	0.1432965	0.9882745	0.754256	0.754256
Cystatin C	0.9925373	0.9827725	0.8428894	1.0008019	0.9143026	0.9128352	1.1215786	0.9018414	0.9553244	0.8600019	0.5145915	0.8542857	1.0838009	1.0838009
Melanoma-associated antigen ME491	0.9610675	1.9187886	1.1822474	1.0432383	0.9894872	1.0623997	0.9855518	1.1614159	1.1374	0.8429528	2.057486	1.1153917	1.0218906	1.0218906
Phase-1 RCT-146	0.9290537	1.0654278	1.0088149	1.0845692	0.961095	1.3571917	0.8274188	1.1850945	1.1210638	1.098419	1.2703335	1.1556522	0.8688875	0.8688875
Gammag-actin, cytoplasmic	0.8008093	0.8682196	0.7539828	0.923081	0.9812056	1.0200942	0.9158759	0.8362757	0.6473575	0.85789	1.0828714	0.8819037	0.9250249	0.9250249
Adenine nucleotide translocator 1	1.147787	0.8575854	0.923081	0.9812056	1.0200942	0.9158759	0.8362757	0.6473575	0.85789	1.0828714	0.8819037	0.9250249	0.9250249	0.9250249
Thymosin beta-10	0.9174478	0.9873879	0.9276073	0.8716582	0.8310276	0.9903249	1.3834974	1.3242525	1.1440005	1.5212133	2.4276903	0.8080554	1.0036772	1.0036772
Insulin-like growth factor I, exon 6	1.3872732	0.833457	1.0006826	1.0401879	1.1763947	1.1168411	0.6370295	1.1221433	0.7535741	0.8883984	0.8595183	0.7295475	0.9542673	0.9542673
Phase-1 RCT-78	1.0681082	1.1640416	1.0239267	0.9812399	1.0592012	1.0116067	0.9913063	0.7771417	0.7548003	0.837193	0.5694442	0.9653973	1.2288669	1.2288669
Alpha-2-microglobulin	1.0180439	0.9472672	1.1240027	1.0798064	1.2537565	1.0108689	0.7191268	0.7692493	0.6382804	0.2616363	0.5252923	0.3352568	1.1238159	1.1238159
High affinity IgE receptor gamma chain (FcER1gamma)	1.1363595	1.0423248	1.0214124	1.0698034	1.0528781	1.118954	1.5133718	0.9459187	1.1438844	1.6383197	1.4425371	0.7992657	1.1030728	1.1030728
GUS ribosomal protein L6	1.1487309	1.0746465	0.8424394	1.0485139	0.923182	0.8119853	1.2581455	1.1350762	1.0547867	1.4828026	1.3534442	0.8559651	1.0567036	1.0567036
IgE binding protein	1.0012897	1.0960099	1.1123488	1.0677552	1.0173423	1.2354007	1.2629712	1.2220699	1.3936443	1.4251382	3.767226	0.8553075	0.8920017	0.8920017
Phase-1 RCT-149	0.9293258	0.928048	1.0611144	1.0044552	1.0569281	1.003527	1.106527	0.923404	1.0818299	0.9688853	3.9844027	1.2315284	1.0483816	1.0483816
Cytochrome P450 2C11	1.550108	0.7128838	1.3732378	1.2340543	1.4566	1.2789942	0.9747297	1.0718885	0.7836187	0.5101882	0.2899337	0.1862213	0.7637638	0.7637638
Uncoupling protein 2	0.8807271	1.0007331	0.9288629	0.9419692	0.8775904	0.8683997	1.1124645	1.1466694	1.2996688	1.8968482	1.3210892	1.123848	0.904959	0.904959
Alpha-tubulin	1.1469418	0.9454505	0.9915666	1.110541	1.0722455	0.8310072	1.5354941	0.8792518	1.0044409	1.2885987	0.8125472	0.8003139	1.2081285	1.2081285
Stearyl-CoA desaturase, liver	2.7434795	0.0528774	1.5265566	0.8228114	2.0229478	2.0737667	0.8492199	1.381182	0.4018637	0.0475301	0.0437714	1.3993397	0.4787742	0.4787742
Glutathione S-transferase theta-1	0.878396	0.4983854	0.6368832	0.6578221	1.2326202	0.725578	1.0794172	0.8700777	1.1614578	1.3185403	0.9390518	0.9622586	0.9556687	0.9556687
alpha-1,2-fucosyltransferase	1.130849	0.9989219	1.0255107	1.0964181	1.048554	0.9830108	1.227628	1.5305979	0.761538	0.9970174	0.7148516	1.111975	0.8042939	0.8042939
Phase-1 RCT-138	0.9866093	1.000538	0.9914349	1.0105298	0.9274696	0.9257351	1.0638621	1.1386904	1.2640575	1.3631569	1.0008943	0.9911675	1.0084654	1.0084654
Phase-1 RCT-295	1.2119931	1.0758541	1.0999397	1.0738385	1.0942107	0.732532	1.3107479	1.04514	0.8641897	1.1506847	1.0590435	0.980986	1.0613744	1.0613744
Phase-1 RCT-164	1.1685184	1.0252593	0.9875138	1.0063412	0.9972071	0.9020976	1.1018189	1.018599	1.0524917	0.8885802	0.695337	0.7532137	1.2852526	1.2852526
Alpha-2-macroglobulin, sequence 2	0.9042392	1.1605289	0.9442838	1.0258551	1.0423769	1.0519522	1.1920803	0.9910222	1.1365511	1.100631	2.0252783	0.767556	0.7596994	0.7596994
Blivardin reductase	0.9538349	1.0320388	1.0425723	1.0212481	0.9413747	1.084318	0.8140081	1.0048004	1.1377785	1.4140321	0.9248817	1.8762749	0.9899457	0.9899457
Phase-1 RCT-121	0.8627341	1.0812109	0.9921852	0.8620837	0.9134206	1.0411897	1.2725234	1.3368292	1.1164314	1.4963027	1.0293612	1.0499172	0.7506802	0.7506802
Dynamin-1 (D100)	1.0924703	0.9686557	0.9748409	0.9588119	1.066854	0.8945248	1.2370943	1.1646252	0.8901801	0.9502544	0.6032047	0.8135103	1.0761161	1.0761161
Phase-1 RCT-192	1.3018655	0.9023318	0.8504744	1.038671	0.9010121	0.8411638	0.8486555	0.9528216	1.0256162	1.2221013	1.1908112	0.8426656	0.903081	0.903081
Fatty acid synthase	1.0730834	0.4076232	1.1922983	0.8384709	1.7206244	1.6078854	0.9168868	0.8689329	0.49216	0.2547888	0.5412595	1.3090779	0.8754308	0.8754308
Phase-1 RCT-211	0.9487587	1.024401	1.2431078	1.1254956	1.0557357	1.221727	1.1237944	1.3507557	0.8904139	0.8845967	1.6380981	0.9108986	0.8478723	0.8478723
Ribosomal protein S9	1.06663	1.380338	0.9508738	1.1176802	0.9088898	0.8330949	1.3565247	0.9008378	0.9440257	1.3917673	1.2909693	1.3449265	1.0381054	1.0381054
NADP-dependent isocitrate dehydrogenase, cytosolic	1.2135843	0.8221809	0.8830767	0.985211	0.8837373	0.84346	1.0050303	0.9289804	1.1501498	1.3217151	0.4991848	0.8656116	1.145787	1.145787
Phase-1 RCT-57	0.791845	1.2377871	0.8214695	0.814515	0.9481741	0.7681946	0.8724057	0.9240596	0.8361725	1.0721129	0.9394465	1.030092	1.030092	1.030092
Phase-1 RCT-38	0.9839906	0.9711403	1.0392029	0.9388719	0.892493	0.9984599	1.0290487	1.055774	1.0488957	0.7718663	0.7520562	1.0121013	1.1452247	1.1452247
Apolipoprotein AII	1.06563	0.936967	0.9513488	0.8936955	1.0165778	0.8444051	1.2653373	2.9859982	0.7418725	0.7688524	0.2823384	0.3940391	0.5854952	0.5854952
Phase-1 RCT-58	1.045484	1.0570312	1.0127146	0.8530968	1.0354431	0.9658874	1.0540302	1.0231626	1.0812482	1.2202263	1.2192286	1.0751817	1.0307137	1.0307137

Table 36

Multidrug resistant protein-2	0.6855845	1.0431606	0.8054094	0.8314571	0.7792258	0.8768979	0.7489455	0.9855973	1.1954582	1.8914113	1.0693926	1.8992503	0.8589303
Phase-1 RCT-39	0.9898007	1.0758013	1.0098232	0.9274405	0.9616258	1.0539874	0.7572527	1.0325894	0.9881377	1.0325894	1.4656085	1.1778817	0.7822692
NIPK	1.1598767	1.0379992	0.9947108	0.9706942	1.0612465	1.1936558	0.7837969	1.0755058	0.987332	0.8806503	0.8719173	0.9490244	0.9137592
F1-ATPase beta subunit	1.3007109	1.0091318	1.0411897	1.0776129	1.1240045	0.8888392	1.1212081	0.8718763	0.8328393	0.9210616	0.576769	1.1389529	1.162457
Elongation factor-1 alpha	0.9939349	1.0491428	0.8125841	0.8352483	0.8972975	0.6878699	1.3254089	0.9885654	1.0284476	1.1525822	1.0198519	1.5254269	1.0901872
Phase-1 RCT-24	1.1246889	0.7830838	0.8442555	1.0721177	1.2694421	1.1398975	1.1975793	0.861874	0.8646186	1.070531	0.9617021	1.1443782	0.8498769
Beta-tubulin, class I	1.1831266	0.7317823	0.804827	1.1201948	1.3746914	1.1141939	1.4307172	0.6872669	0.9894317	0.8950028	0.8110338	1.0295827	0.8574175
14-3-3 zeta	1.0867069	1.0059623	0.9058894	0.9077148	0.9943005	1.066612	0.7201351	0.920057	0.800279	1.1444138	1.4321153	1.6451011	0.9203205
Alpha-prothymosin	1.1920507	0.9250034	0.9334533	1.0602723	1.0094984	0.8400812	1.4921767	0.8782877	0.7920427	1.2273427	0.5698307	0.9486631	1.3084159
Phase-1 RCT-58	1.0518457	0.7900956	0.8028987	0.7378812	0.881271	1.0563208	1.0722281	0.9636587	1.2072131	1.611833	0.807139	0.7597046	0.5749461
Phase-1 RCT-280	1.0619887	0.6914315	0.7189685	1.4707156	1.8079067	1.2459372	1.2137754	1.1838888	0.7738295	0.4114957	0.7509206	1.3822116	
Transitional endoplasmic reticulum ATPase	0.9009858	0.928995	0.8757679	1.0203118	0.8473463	0.9245597	0.6517322	0.9946398	0.77558	1.0174808	1.2180117	1.2043289	
Beta-actin	0.8893366	0.8620075	1.027671	0.8894912	1.287639	1.0513736	0.8041112	0.7553344	0.8254243	1.5399238	1.4478053	0.6182171	0.8890583
Thioredoxin-1 (Trx1)	1.2202142	1.013655	1.059808	1.1403744	1.1277674	1.090258	1.1850754	0.221549	0.8254542	1.0360731	1.4207895	0.6153988	0.8781273
Phase-1 RCT-174	1.1679206	0.965239	1.088437	1.0718503	1.1508725	1.0694553	1.3054378	0.7789581	1.0065122	0.8668034	0.8545728	0.0991783	1.0608683
Beta-actin, sequence 2	1.0602272	0.946383	0.9986196	1.0283955	1.2066067	1.0694553	1.3054378	0.7789581	1.0065122	0.8668034	0.8545728	0.0991783	1.0608683
Phase-1 RCT-109	0.9442712	1.0646056	0.8871577	0.9239832	0.8651074	0.8263856	1.3273343	1.5537783	1.0129572	1.231008	0.0403087	0.7841685	0.9652577
Phase-1 RCT-154	1.0885546	1.0149292	0.955093	1.0831414	0.9316033	0.9810329	0.9040819	1.0656397	1.1508584	0.931163	1.3778303	1.1550199	1.0843228
Hypoxanthine-guanine phosphoribosyltransferase													
Phase-1 RCT-213	1.1129258	0.929717	1.0987909	0.9387038	1.0729774	0.9862529	0.8423265	0.799869	0.857602	1.1326075	1.0975078	1.4547588	1.046779
Phase-1 RCT-260	0.976692	1.034677	0.9556306	1.0234357	1.0268551	1.0714388	0.8313937	1.0396932	0.9549844	0.9024361	1.0931168	1.0802186	0.8718408
Phase-1 RCT-12	0.928461	0.8764984	0.960214	0.9017626	1.0820802	1.0643818	1.2625679	0.9231458	1.074201	0.9099266	1.0985059	0.9297852	0.930748
Ribosomal protein S8	1.0460149	0.9762187	0.9702834	1.033324	1.0379231	1.0188287	1.33934	1.0748171	1.1238401	1.3600008	1.6202019	0.7931545	1.012319
Pyruvate kinase, muscle	1.1908447	1.0642874	0.8912698	0.9678409	0.9872188	0.8573498	2.0813603	1.1953193	1.0681615	1.3267509	1.5123247	0.6152434	1.0617156
Nucleoside diphosphate kinase beta isoform	1.1740694	0.8726343	1.02958	1.0458872	1.0018204	1.119488	1.0417342	0.73695	0.8210776	0.9880903	1.2260188	0.8109011	0.8240356
p55CDC	0.960464	0.9501404	0.9285223	0.8306595	0.8496646	0.8287804	1.1273481	0.8525945	0.8657587	1.0327852	0.9654631	1.302827	0.8196846
Phase-1 RCT-156	0.9555304	1.0579706	0.8007319	0.8715127	0.8388116	0.7791645	1.0630088	1.1194626	1.0256776	1.3632537	2.247025	1.2409654	0.8389394
Ribosomal protein L13A	0.9913226	1.0292852	0.9529764	0.9912073	0.9860693	0.9814863	0.8075185	1.0541316	1.0248603	1.0059857	1.154545	1.150075	0.9107769
Insulin-like growth factor I	1.3885748	0.7124481	0.9073932	1.2899565	1.0668842	1.0688615	0.9199272	0.9220709	0.7746004	0.9229568	0.4388185	0.8528387	1.2433594
Cytochrome P450 3A1	0.6792537	1.3783569	0.7842236	0.9582224	0.9869733	0.8145262	0.5481643	1.4796853	0.3575777	0.0980983	1.0587738	1.0438898	
(Ribosomal protein L6)	1.1547095	1.0906253	0.9117827	1.0018085	1.0195365	0.873324	1.5547022	1.1464562	1.011876	1.2883167	1.5376393	0.6812049	1.0054084
Organic cation transporter 3	1.133396	0.9808955	0.7915407	1.0270245	0.9367722	0.7897837	1.2380339	1.0742307	1.0661566	1.2431863	1.1867591	1.1260988	1.0815742
Calpain 2	1.0055411	1.0074106	1.0113428	0.9740971	0.9663036	1.0820388	1.1055788	0.940381	1.0116924	1.2158599	1.1343175	0.9907947	1.0189475
Phase-1 RCT-102	1.7152256	0.4570049	1.3628374	1.5261964	1.3880997	1.4555887	0.8361394	0.7008646	0.6919818	0.5131805	0.2764272	0.8988893	1.0504878
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter													
Phase-1 RCT-227	1.0084519	1.0556134	0.9961531	1.1150582	1.0521215	0.9397445	0.8833206	0.8225213	0.4728195	0.4382838	0.8815355	0.873984	
N-hydroxy-2-acetylaminofluorene sulfoxidase	1.1789032	1.5770384	0.9449762	0.9757962	1.0903181	0.8728708	1.0237017	0.8119335	0.4496424	0.7767955	0.2953237	0.7718899	1.2624362
(ST1C1)	1.0856069	1.0583393	0.8776359	1.1009021	1.0590694	1.0777491	0.8508981	0.876423	0.6438901	0.6330161	0.0858936	0.9780942	0.9841273
Cathepsin S	0.9136758	0.9466658	0.909021	1.0471763	0.9397074	1.1021055	0.9787974	1.098088	1.0983486	1.3528031	1.0384243	1.0561284	1.3037747
Apolipoprotein CIII	1.1074739	1.0116826	1.0672651	0.9708597	0.9860711	0.9892792	1.0108827	1.2406608	0.9528882	1.0905821	1.1168836	1.2818281	1.2675391
Cytochrome P450 2A3	1.1003094	1.0571331	0.8898748	1.161168	1.0691106	0.8663378	1.1598556	1.0937663	1.1663631	0.8573025	1.2050781	1.3215362	
Cytochrome P450 2C23	0.9890448	1.111925	0.6322894	0.846382	0.8708217	1.3627856	0.9084136	1.2304703	1.6954662	0.173472	0.682736	0.8890165	
Apolipoprotein C1	1.0450132	1.2988476	0.8615001	0.8783421	0.9254555	0.8731924	1.7300364	0.795972	0.6529711	1.071679	0.265856	0.5117769	1.3140316
Betaine homocysteine methyltransferase (BHMT)													
Paraoxonase 1	1.0489192	0.5996926	1.9307102	1.5501614	1.8862886	1.27551	1.405062	1.3421605	1.282184	0.6906166	0.0712525	0.576084	1.4516473
Phase-1 RCT-207	1.1025195	1.0417995	0.8626052	1.0941684	0.9817534	0.7644303	1.704653	0.8922243	1.022918	1.3272403	0.1367027	0.938402	1.1585777
Cathepsin B	0.8909885	1.0690686	0.9697805	0.8851281	0.9768459	1.0298163	0.7964164	1.1617899	0.9963223	0.8915479	0.8917728	1.096212	0.8853039
Phase-1 RCT-144	0.9808558	0.8881602	0.8859205	0.8679422	0.8339279	0.8411909	1.253539	0.8981218	1.7867509	1.3886065	1.7867509	1.185339	1.1550395
	1.1832355	0.9952699	0.8862852	0.9659624	0.9450122	1.1100124	1.102073	0.9002206	0.9280213	1.1453855	1.3175316	1.1061742	1.0920479

Alpha-1 microglobulin/bikunin precursor (Ambp)	1.1227962	1.0573705	0.966149	1.0744696	1.0001813	1.7840995	1.4693968	0.7547584	0.8745387	1.2435148	0.7159473	0.917112	1.3791871
Cyclin D1	1.123014	0.7740765	0.8278488	1.0960695	1.101492	1.1195472	0.7388634	1.4721022	0.5383818	1.0256747	0.8498021	1.5486716	1.2139559
Presenilin-1	0.9684903	1.0257119	0.9249352	0.9730316	0.8559638	0.8278607	1.2522312	0.946895	0.9551008	1.0025127	0.4169594	0.931981	1.1816046
Protein tyrosine phosphatase, receptor type, D	1.2337748	0.7944145	1.0954939	1.0424148	1.1221355	1.0275847	1.327915	0.6696814	1.0260877	1.1157317	0.7172841	0.6381334	1.1097333
Multidrug resistant protein-1	0.4633577	1.3605262	1.1036029	0.8363637	0.8473235	0.8823858	0.8641516	0.8202049	1.1339741	2.6160375	0.9582012	1.5876356	0.9888236
Cathepsin L, sequence 2	0.7435958	1.1466589	0.8609684	0.8571207	0.780852	0.7177197	0.9437895	1.1781021	1.2811123	1.8058435	1.8552697	0.8922631	1.1261553
JNK1 stress activated protein kinase	0.9353724	0.9236769	1.0434995	1.0571425	1.1520783	0.8086606	1.0917792	1.2398564	0.9435091	0.8911144	0.7879864	1.1874931	1.1874931
Phase-1 RCT-43	0.9611611	0.9559153	0.9245868	0.8882048	0.8983784	0.8222454	0.8323638	1.0045827	0.974783	1.0760778	1.0563263	0.7797094	0.7579429
Tissue plasminogen activator	1.0537682	0.9543054	1.0871182	1.0410353	1.0798628	1.0878012	0.9901668	0.8059819	0.9157869	0.9267975	1.0972991	0.8456018	1.0019314
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.0779992	1.0539842	0.8922252	1.0918648	0.9169959	0.8495632	1.4173315	0.983925	0.9148318	1.06924	1.156948	1.0862191	0.9426346
Phase-1 RCT-173	0.7316627	1.1358261	0.9940911	0.9824165	1.064026	1.2300089	0.7704348	1.3243454	0.8927029	0.8998468	1.1152853	1.0487052	0.9191367
Onithine decarboxylase	1.0218287	0.956551	1.0639799	0.9476331	1.1777921	1.0983492	0.6282221	0.8415299	1.028521	0.9666587	1.393947	1.6039736	0.9775671
Zinc finger protein	0.892592	1.2930791	0.9041849	0.957519	0.8497521	0.9576426	0.8343093	1.0678099	0.9188789	0.8720024	0.9309864	0.9106594	0.854264
CDK108	0.9188712	1.0944127	1.0891309	0.8985934	1.2916408	1.3232597	0.8838292	1.0406368	0.9286849	0.6603304	0.7541694	1.072179	1.0037484
Phase-1 RCT-117	1.182582	1.0109799	1.1137104	0.98249	1.0622932	1.0357401	1.0376747	1.4141141	0.6826147	1.0587884	1.0112221	1.0161958	1.5005915
[Phase-1 RCT 98]	0.9941011	0.966181	1.0510491	1.0575081	1.1521331	0.9899253	0.5943522	0.795604	0.883294	0.9031604	0.750903	1.0174438	1.0648377
Aquaporin-3 (AQP3)	0.9837914	0.9868083	1.0028027	0.9955408	1.0201402	1.1444134	0.9534005	0.9976315	1.0270131	1.0010186	1.1204846	0.9541577	1.0749208
Cholesterol esterase	0.7807266	0.8090391	0.8367775	0.9474692	1.1835591	0.8412047	0.963367	0.9804129	0.62838	0.6106226	0.2963703	0.8382872	0.9806467
Ribosomal protein S17	1.1353065	1.1709368	0.8701046	1.082541	0.9565603	0.8990866	1.9184402	1.0321016	1.0209662	1.3698387	1.7063991	0.8382872	0.9806467
Poly(ADP-ribose) polymerase	0.9059508	0.9157959	0.9991729	1.0011454	1.029419	1.050837	0.9782824	0.9327309	1.0887103	1.0924722	1.1368742	1.3425574	0.9384226
Annexin V	1.2992718	0.9431049	0.7619942	1.1271226	1.0546576	0.9688961	0.8528686	1.07704871	1.213216	1.3544004	1.0370871	1.3261613	1.0417982
Phase-1 RCT-33	1.0611541	0.8695906	0.9619659	0.8651355	1.0146865	0.9320778	1.1280866	1.0770398	0.9030384	0.7818755	0.2524734	0.913493	1.321114
Phase-1 RCT-61	0.9857454	0.9574078	0.9294578	0.8140184	0.9384998	1.127232	0.7485184	1.0409778	1.14787	1.105678	1.1887727	0.9719888	0.9873656
Retinol dehydrogenase type III	1.2986244	1.0775114	1.0760976	1.0367891	0.98343	0.8622851	1.6817278	0.9790127	1.0659886	1.1881565	0.3758506	0.5197056	1.3457546
ATPase inhibitor (rat mitochondrial IF1 protein)	1.2283452	0.9106761	0.8806968	1.1302642	1.0251763	0.938646	2.222958	1.0671028	0.9210184	0.9006414	0.3211214	0.3570914	1.1001531
Thymidylate synthase	0.8448799	0.9882188	0.9772775	0.8694392	0.9340508	1.0758566	0.8974919	1.0879888	0.9229166	1.198154	1.2031559	1.473826	0.8328882
Interleukin-18	0.8310843	1.6132858	0.9736366	1.0460393	0.9327579	0.89555	0.865281	1.0661435	1.1950697	1.7243188	1.2496434	1.2243454	0.7853918
Lectin:cholesterol acyltransferase	1.2097888	1.1212023	0.9220008	1.1214192	0.9355801	0.8285992	1.2235104	1.43006	0.889379	1.4320257	0.7178342	0.7729059	1.1669066
Contrapsin-like protease inhibitor (CPI-21)	1.2392895	1.5013045	1.1838784	1.1539097	1.0824828	0.9331306	1.014031	0.6427649	0.5335479	0.5804208	0.153969	0.8403084	1.083728
Proliferating cell nuclear antigen gene	1.0018058	1.0789398	0.9441286	0.960838	0.9779581	0.9986333	0.7838894	0.8905549	0.9617404	1.3109872	1.1931351	1.8337828	0.9251331
Phase-1 RCT-230	0.9565401	1.1562042	1.1512678	1.0514365	1.0404675	1.3736684	0.7287259	1.2258834	1.0276912	0.6108781	1.4954864	0.8545001	1.1295297
Cytochrome P450 2D18	0.7392199	1.3688108	0.9729657	0.8100653	0.9510138	0.7028509	0.9402359	1.203407	1.0045012	1.3378599	0.5033404	0.8545001	1.1295297
Phase-1 RCT-48	1.2375287	0.7293276	1.1475164	1.0885278	1.0595316	1.2361856	0.6803768	0.6909185	0.745938	0.6749886	0.5688186	1.085952	1.3497325
Phase-1 RCT-292	0.9300364	0.9459599	0.9800494	0.9413398	0.921587	1.0440988	0.9189843	0.9924922	1.0595169	1.0147758	1.0631228	0.976942	0.986387
Argininosuccinate synthetase 1	1.086732	1.1886728	1.4094157	0.8522293	0.9643988	0.7340687	1.5042547	0.8433512	1.1891431	0.6602105	0.3391129	0.8418999	1.0692116
C-reactive protein	1.0874767	0.7270421	1.0439742	0.9154378	0.9665421	0.8273908	1.5595946	0.8192313	0.9555904	1.0991669	0.7286122	0.7638546	1.2653943
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint (1)													
Compound-Dose Animal Number	NAL 45	NAL 45	NAL 180	NAL 180	NAL 180	NAL 180	NAL 180	NAL 180	NAL 180	NAL 180	NAL 180	NAL 180	NAL 180
Liver Toxicity Necrosis Classification	2648	2648	2648	2648	2648	2648	2648	2648	2648	2648	2648	2648	2648
Gene Name	no	no	no	no	no	no	no	no	no	no	no	no	no
Osteocalcin	0.9147662	0.9891366	0.9488654	1.0682336	1.0490556	1.1000005	1.1010487	1.0681022	1.0206692	0.9911286	1.0095752	1.0243487	1.1038851
Slit1	0.8712027	0.9386342	1.0976484	0.9299006	0.946978	0.8712998	0.8240463	0.9493735	0.9496202	0.9628266	0.9997175	1.0348947	0.9930269
Calpain I heavy chain	0.9976999	1.0375831	1.0534211	1.1231315	0.971337	0.9773347	1.0176562	0.9987183	1.0200584	1.00913	0.9321313	1.0636147	0.9980707
Phase-1 RCT-179	1.0535889	1.114375	0.9217617	0.8967619	1.0041624	0.9389424	0.9013762	1.0375403	0.9665334	1.0143441	0.9893667	1.1870441	1.1313825
Phase-1 RCT-107	0.9485946	0.9083008	0.9442056	0.8243165	1.1768436	1.5979345	1.0028646	1.2803292	0.9318629	0.8833773	1.1227769	1.0361755	0.9377657
Heme oxygenase	0.9406061	0.9229921	0.8282218	0.8652256	0.854371	0.9872378	0.8836949	0.8570268	0.8659331	0.8625652	0.8902104	1.4914275	
Collagen type II	0.7436398	0.7614648	0.8507482	0.8196262	0.7320131	0.8930218	0.7775022	0.684517	0.8482833	0.8741081	1.463999	0.9234915	
Phase-1 RCT-81	1.0859071	1.2039735	1.218669	1.2427287	1.2024243	1.3928008	1.4242733	1.2844416	1.2126713	1.1101803	1.1521755	1.0371921	0.9939237
Glycine methyltransferase	1.0164378	0.9361526	0.905613	0.7576993	1.4146914	2.4705284	1.1170149	1.7575016	0.9720452	0.897871	1.4945792	1.5294602	0.8367874
Cystatin C	0.8682982	0.9291872	1.1216093	1.1078054	1.0402185	0.9352144	0.86972	0.7354955	1.252816	1.0925428	1.2398707	1.2533616	0.9857466
Melanoma-associated antigen ME491	0.9815267	1.3411556	0.9306477	1.0324688	0.8041084	0.8442448	0.9756926	0.8921669	0.8623412	0.8815501	0.8455257	1.2210563	1.2444118
Phase-1 RCT-146	0.8264166	0.8519853	1.0970615	0.8305411	0.8020375	0.9175733	0.7133088	0.8049082	0.8354396	0.8801082	0.7911438	1.0328479	0.9935144
Gamma-actin, cytoplasmic	0.7677951	0.7669878	0.7173405	1.1920035	1.3897043	0.9244225	0.9856874	1.5039393	0.9130033	0.8772457	0.7291561	0.7420574	1.0207638
Adenine nucleotide translocator 1	1.0408248	0.8727914	0.8480772	0.8542812	0.7029305	0.7183636	0.8490511	0.6951975	0.833414	1.0005333	0.8619355	1.1447226	1.1191316
Thymosin beta-10	1.008264	0.9414385	1.0216744	1.1006081	0.8208765	0.9981913	0.9410115	0.7858071	0.8749503	0.8513818	0.8933719	1.4785045	1.0188871
Insulin-like growth factor I, exon 6	1.051881	0.9989326	0.9863029	0.8865702	1.4880875	1.0043168	1.5835485	1.5650039	1.1487107	1.0635723	1.2018175	0.694047	0.6636308
Phase-1 RCT-71	0.9361455	1.1376109	1.0002802	1.0339024	1.393094	1.4763999	1.6079495	1.5177312	1.353667	1.2090802	0.9823621	0.9693164	0.9540514
Alpha-2-microglobulin	1.2563403	1.1587491	0.6779439	0.8013968	1.893734	1.373557	1.1115515	2.1022305	1.4788824	1.0920517	1.4406638	1.210603	0.4648515
High affinity IgE receptor gamma chain (FcεR1gamma)	1.0750806	1.0251201	0.9633488	1.0869501	1.0565835	0.9597281	1.0188864	1.1409408	0.9577985	1.0208466	0.8726915	1.1324425	1.1602878
60S ribosomal protein L6	1.1287233	1.1853625	1.1682871	1.2098617	0.9381768	1.0749744	1.0324316	0.8798761	1.0515441	1.0748861	1.0293868	1.1392695	1.1411878
IgE binding protein	0.9546778	0.8855375	0.8255485	0.8845342	0.8028289	0.9654349	1.0450815	0.951803	1.0220971	1.016634	0.7316075	1.0138838	1.052861
Phase-1 RCT-149	0.9200097	1.056713	1.1715338	1.1082515	0.9357019	0.9872924	0.846527	0.9493878	0.9026027	0.9304614	0.7319083	0.7758704	
Chromatin P450 2C11	0.8299488	0.8704867	1.0194743	0.9457214	0.8573985	0.9957351	0.8060566	0.8369874	0.8708708	1.0863271	0.8129715	1.1524162	0.7092815
Uncoupling protein 2	0.9193886	0.8503677	0.96035	1.1411486	0.8583807	0.9432798	0.9157972	0.8363673	0.8900668	0.8258673	0.8135876	1.1343237	1.0162855
Cofilin	1.0720161	1.0692175	1.2554569	1.2933493	1.1867094	1.3134465	1.3372964	1.2154084	1.2362891	1.314074	1.2810206	0.9734651	1.0900774
Alpha-tubulin	1.4371778	1.2289413	1.2376714	1.2658547	0.8089383	0.7904624	0.7937483	0.785783	0.9408534	0.9505962	0.8416742	0.9287866	1.1379485
Steady-CoA desaturase, liver	0.8208221	0.9310387	0.981368	1.5956132	0.9880405	0.7579071	0.8322318	1.0935715	0.470802	1.1015036	0.8207721	1.3361676	1.2032988
Glutathione S-transferase theta-1	1.0801333	1.1908382	1.1447628	1.3846014	1.167476	1.2842436	1.1913952	1.1625053	1.3391485	1.0719215	0.8566172	0.9160208	1.3319447
alpha-1,2-tycosyltransferase	0.8058795	0.8373382	0.7082721	0.7746964	1.0085449	0.7964341	0.8766717	1.063562	0.9263592	0.8941866	0.8777449	0.9738569	1.1148945
Phase-1 RCT-138	1.0051467	0.9958098	1.1222726	1.0250318	1.2239394	1.2918928	1.2019229	1.354122	0.9423161	1.0727934	0.9583547	0.9695967	0.8740953
Phase-1 RCT-285	1.0436698	1.1315644	0.9435917	1.1651549	1.2267755	1.0756252	1.1605604	1.2807249	1.0950618	1.0731391	1.1032711	1.0539957	1.2049714
Phase-1 RCT-164	1.3414037	1.2770928	1.2028285	1.1952517	0.8994938	0.890294	0.8844867	0.8967226	0.9086482	0.9086996	1.0709443	1.1009766	1.0661381
Alpha-2-macroglobulin, sequence 2	0.7856277	0.8290985	1.0234447	0.9669998	0.9357274	1.0522249	0.9968801	0.9675844	0.8991543	0.9863888	1.0224123	1.144344	1.102659
Bilirubin reductase	1.0863231	1.0942054	1.1467558	1.2478743	0.9228338	0.8491895	0.870301	0.8434774	0.7549841	0.8072573	0.7829774	1.042279	0.9880469
Phase-1 RCT-121	0.8171266	0.8495047	0.8637909	0.760667	0.7864258	0.7060736	0.7114325	0.7711266	0.7931817	0.8704031	0.7228972	1.0728972	1.0291678
Dynamin-1 (D100)	0.9533131	0.9249783	0.8920444	1.0732712	0.9450948	1.1911267	1.0122385	0.8416287	1.048423	1.2052202	1.1578372	1.1558328	1.123796
Phase-1 RCT-192	0.9556371	0.8917921	0.9880742	0.9688997	0.792768	0.9287247	0.7198688	0.7512921	0.822525	1.0265128	0.8808393	1.2404513	1.2106884
Fatty acid synthase	0.7844151	0.9711194	0.9726406	2.1169897	0.63064	0.5953478	0.4457553	0.5827688	0.4185709	0.4227541	0.4525114	1.9735835	
Phase-1 RCT-11	0.8762057	0.9428728	0.8645449	0.8745469	0.9468275	0.8986761	0.8192912	1.0118366	0.8789988	0.8243776	0.9169517	1.0130594	0.9940489
Ribosomal protein S9	1.2888178	1.4588515	1.410056	1.602819	0.6758888	0.3082534	0.7762632	0.8011875	0.9506678	0.8976668	1.2933398	1.1423813	
NADP-dependent isocitrate dehydrogenase, cytosolic	1.2307334	1.1685051	1.095857	1.3802017	1.0833308	1.0192965	0.983815	1.0726548	1.1179047	1.1372709	1.3077935	1.4857517	
Phase-1 RCT-57	1.0350158	1.060021	1.0811781	1.142453	0.948064	1.1706275	0.9854169	0.9737081	1.0214071	1.1396002	1.0312948	0.8593328	
Phase-1 RCT-36	1.0659205	1.1130673	1.0762144	1.3176169	0.932559	1.002878	1.016086	0.8553294	1.0028053	0.9233998	0.904835	1.2047985	
Apolipoprotein AII	0.6310686	0.6620002	0.6888653	0.6023305	1.1117367	1.3497356	1.1871053	1.0809634	0.7587417	0.8718275	0.6704185	1.1926595	1.4782168
Phase-1 RCT-68	1.0123672	1.0937538	0.9742795	1.037108	0.9930121	0.8502379	0.916113	1.032685	0.9770305	0.9844192	0.9337971	0.9155278	0.9601467

Multidrug resistant protein-2	1.1612363	0.9379889	1.1518694	1.3727981	0.9021665	0.8302945	0.8297808	0.8012325	0.8182293	0.8610359	1.0549647	0.8119903	0.6527317
Phase-1 RCT-39	0.8398247	0.7429932	0.7974219	0.8232224	0.7005519	0.8336013	0.6517676	0.6979146	0.78692513	0.765115	0.9570239	0.9397483	
NIPK	1.0254208	0.9370484	0.958658	0.8902682	1.0032623	0.8130045	1.068172	1.0392846	0.8380644	0.9356745	0.9014136	0.8908796	0.9875944
F1-ATPase beta subunit	1.1431013	1.2680589	1.2522893	1.26593	1.3564028	1.1587338	1.3672363	1.4205534	1.1740105	1.1810247	1.2794187	1.1916652	1.0059454
Elongation factor-1 alpha	1.0308592	1.0532014	0.9986481	0.8643104	0.7648016	1.2577198	1.1566188	1.2334007	1.1536013	0.9048073	0.8857375	1.0625197	
Phase-1 RCT-24	0.9308486	0.8957918	0.9241459	0.9898481	0.8431507	0.7897729	0.8274485	0.7798192	0.8784555	0.8689429	1.0674327	1.0494907	1.1844808
Beta-tubulin, class I	1.0585823	1.0105604	1.033891	1.1811792	1.0480233	0.7786593	0.928995	1.0754402	0.8870018	0.8674054	0.7874237	1.0494907	
14-3-3 zeta	1.1000648	1.0900074	0.7545614	1.2013283	1.0731572	0.8514728	1.4176291	1.0420884	1.0353783	1.0054821	0.8743569	0.8139162	0.8192305
Alpha-prothymosin	1.0476112	1.1445666	1.0793945	1.3827416	1.4588745	1.6149764	1.9328448	1.5526448	1.3135582	1.425532	1.3598168	1.0831113	0.8723897
Phase-1 RCT-58	0.7691084	0.5414674	0.5267108	0.8934351	0.6144975	0.751259	0.854617	0.6227593	0.7150984	0.6937547	0.9140953	1.1609384	
Phase-1 RCT-290	1.029976	1.0631784	1.225132	1.4778811	2.0695183	2.647869	1.8948966	2.3765886	1.2950222	1.031608	1.8142194	1.1854224	0.7086721
Transitional endoplasmic reticulum ATPase	1.4392047	1.4635763	1.3296083	1.4265867	0.9156389	0.9454832	0.8359668	0.8619606	1.0466201	0.9190549	1.0042983	0.9596976	0.9151325
Beta-actin	0.8977177	0.7450986	0.406947	1.3621112	1.5518385	1.0467507	1.2063875	1.5262188	0.9682944	0.9747731	0.8771771	0.4915266	0.5224849
Thioredoxin-1 (Trx1)	0.9474517	0.9551458	0.8148626	0.8106747	0.7059963	1.1099467	1.0506935	1.2169228	0.9735302	1.0100622	0.9673498	1.0868964	1.051946
Phase-1 RCT-174	1.1909225	1.3138336	1.1230534	1.0650371	0.8883016	1.1048603	0.9722873	0.9409074	1.1072148	1.009454	0.9101424	1.1227518	0.993932
Beta-actin, sequence 2	1.0407416	0.9617327	0.8996311	1.2185603	1.3021172	1.1109042	1.2332952	1.4097862	1.0162219	0.9757723	0.9013609	1.0122339	0.981077
Phase-1 RCT-109	0.9944954	0.9818392	0.9991325	0.9706016	0.9787259	0.8921556	0.928609	1.0026973	0.8244018	0.9266145	0.7959788	1.1872802	1.042807
Phase-1 RCT-154	0.9238402	1.0850054	1.0118535	1.1629112	0.9255705	0.8967689	0.8652214	0.8980485	1.0172708	0.92075	0.9366597	1.0273411	1.0960258
Hypoxanthine-guanine phosphoribosyltransferase	1.2005963	1.173832	0.9414581	1.2987282	0.8667651	0.7932474	0.835735	0.8549901	0.9122561	0.917501	0.8474942	0.8430402	0.9179947
Phase-1 RCT-213	1.0400016	0.8944027	0.9757901	1.0816636	0.9337286	0.9580717	1.0163248	0.9087254	1.0142208	0.9103023	0.8689073	0.9609211	0.9838675
Phase-1 RCT-280	0.817779	0.7835026	0.826214	0.7369392	0.9009819	0.7721994	0.8437855	0.8335188	0.6711952	0.812216	0.7736219	1.025524	0.9023159
Phase-1 RCT-12	0.9939669	0.9614422	1.0443068	1.0894181	0.882791	0.8925366	0.9470108	0.814652	0.8972786	0.7743334	0.781499	0.9499077	
Phase-1 RCT-293	1.0022143	0.9962489	1.0828778	0.9594031	0.9753978	1.1421713	1.142178	0.9989736	1.506845	1.0875044	1.1438954	1.1349894	1.077701
Ribosomal protein S8	1.0118034	1.0352988	1.0958412	1.2028149	1.0958484	1.1578766	1.1258156	1.1589929	1.086008	1.0898642	1.0818838	1.2314607	1.148664
Pyruvate kinase, muscle	1.1428827	0.7026794	1.0201123	1.0586416	0.9782394	1.0011788	1.0607005	0.9975391	1.0104824	0.8986286	0.8340716	0.9410275	1.020891
Nucleoside diphosphate kinase beta isoform	0.7250332	0.8082185	1.3501107	0.9688834	0.9495609	0.9688834	0.9800393	0.9180033	1.1691092	1.0034987	0.7995623	0.8524246	1.0494255
p53CDC	1.0127658	1.0474192	0.9710062	0.9812501	0.898312	0.9202299	0.8880499	0.8726671	0.8781474	1.2154872	0.8523893	0.8510842	0.8845373
Phase-1 RCT-156	0.987346	1.0036466	0.8997415	0.9997685	0.822236	0.7668398	0.8828662	0.7569482	0.8542667	0.8520774	0.794499	1.2656443	1.1776992
Ribosomal protein L13A	0.9882755	1.0247308	1.0437845	1.0685399	0.9196098	0.9847405	1.0163355	0.9287484	1.006423	1.0217731	0.9168902	1.0376508	1.0092086
Phase-1 RCT-258	1.0688092	1.2108268	1.0353371	0.8298581	1.3047029	1.1052954	1.3137818	1.4812555	1.1055781	1.0158107	1.2005968	0.7882857	0.7399306
Insulin-like growth factor 1	1.3239988	1.3113935	0.9978398	0.8068293	1.0862622	1.1218323	0.850252	1.1425034	2.3639562	1.8077859	2.0451283	1.348377	0.5963042
Cytochrome P450 3A1	1.018145	1.0005444	1.0300328	1.112784	1.1594827	1.1405401	1.1024618	1.2132626	1.0049261	1.1147823	1.0351973	1.0381678	1.0454322
(Ribosomal protein L6)	1.0635039	1.1265732	1.1415148	1.1856589	0.8398094	1.0643898	1.0734493	0.8608773	1.0245993	0.9841865	1.0932629	1.1319125	
Organic cation transporter 3	0.9306198	0.9583113	1.0083716	1.0469586	0.9403505	1.058296	1.0259593	0.9983848	0.9275092	0.9533305	0.9140133	1.0077493	0.9996519
Calpain 2	0.7430327	1.1820596	0.9621376	0.8313277	0.9148487	0.8319918	0.9102434	0.8988829	1.0345948	0.9325219	0.9670129	0.8808992	0.5893461
Phase-1 RCT-102	1.005657	3.405289	1.0076522	0.8627828	1.0573655	1.0110977	0.957339	1.0457208	0.9205081	1.1255362	1.014275	1.174826	1.3316534
Equibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.8183033	1.021913	0.8564208	0.895339	1.7193093	2.1500123	2.136088	2.149468	1.7654392	1.868248	1.6628165	1.4214001	1.0657364
Phase-1 RCT-227	1.137288	1.1289864	0.9027274	0.97553758	1.1820946	0.9856857	1.1377486	1.338185	0.9257401	1.2707722	1.3762817	0.8470569	0.8648127
N-hydroxy-2-acetylaminofluorene sulfoltransferase (STC1)	1.361804	1.0594404	0.8828356	1.1566075	1.1907812	0.9784386	1.1090113	1.1796782	1.0986004	1.0154128	1.1252106	1.1197613	1.2823292
Cathepsin S	1.4012852	1.1493348	1.0963252	1.2348676	1.1810548	1.3965524	1.2922933	1.1644843	1.1220003	1.0894417	1.2403752	1.2434987	1.075884
Apolipoprotein CIII	1.4892892	1.232114	1.1512853	2.0122929	1.1789479	1.2803565	1.2131112	1.034832	0.8735153	1.1027521	1.5482737	1.4147185	
Cytochrome P450 2A3	1.017396	1.1359179	1.037053	1.1369281	1.343562	1.488157	1.4566234	1.3457034	1.2638164	1.351868	1.5591495	1.5492147	1.1754739
Cytochrome P450 2C23	1.093269	1.0397438	1.2117387	1.2138997	1.4307657	1.4583184	1.4304458	1.6201338	1.1559	1.2882545	1.1101732	1.4328041	1.1160659
Apolipoprotein C1	1.0031781	1.0838253	1.1963247	1.5138712	2.465419	3.905292	2.6158795	3.3637373	1.4573135	1.1002183	2.431861	1.3200847	0.5840401
Betaine homocysteine methyltransferase (BHMT)	1.0892813	1.0793746	1.1295761	1.1853142	1.2894782	1.4267334	1.3624862	1.394882	1.2847519	1.4363378	1.8130792	1.2259889	1.2462178
Paraoxonase 1	1.1295588	0.8133348	0.9513911	1.1010283	0.9267963	0.8706352	0.8308841	0.9647198	0.8595952	0.9372801	0.9713334	0.9585154	
Phase-1 RCT-207	1.1422342	1.103397	0.9264457	0.9620208	1.3059382	1.1585654	1.3070632	1.2807446	1.3415215	1.0504868	1.2152315	1.1723552	0.9510422
Cathepsin B	1.0622104	1.1060777	1.0863566	1.1475734	0.808528	0.8662474	0.8284239	0.7314598	0.8175564	0.85144	0.8112554	0.8997876	0.9947868
Phase-1 RCT-144													

Alpha-1 microglobulin/bikunin precursor (Ambp)	1.112113	1.2111702	1.2383049	1.2688946	1.3904756	1.4859713	1.4516711	1.3774835	1.2518892	1.2349813	1.3297697	1.1595097	0.9528617
Cyclin D1	1.0504048	1.1382887	1.2570727	1.164803	0.7232428	0.7326468	0.7668667	0.6669947	0.8144977	0.7898943	0.7456075	1.0734183	0.8935113
Presenilin-1	1.0369233	1.2396995	1.1041774	0.7235389	1.6484641	1.9073311	1.8917859	1.8179574	1.3948231	1.2837711	1.880648	1.0305552	0.8381836
Protein tyrosine phosphatase, receptor type, D	0.9883894	0.982193	0.9555584	1.2110115	2.15285	1.4726137	1.9470203	2.4399036	1.8000854	1.6058899	1.7617741	0.9325175	0.8165339
Multidrug resistant protein-1	1.263138	1.0949279	1.2683559	0.9871832	0.7608962	0.8187804	0.9234994	0.7047332	0.8350781	1.0028453	0.8104734	0.8503245	0.8503245
Cathepsin L, sequence 2	1.3409743	1.0505468	1.1865433	1.0333443	0.7841266	0.8503167	0.862914	0.8355236	0.957256	1.3069149	1.1758773	1.1614711	1.1614711
JNK1 stress activated protein kinase	1.2867584	0.9343085	1.2117618	1.2807126	1.8793037	1.9044508	1.3127513	2.0389585	1.423925	1.3374652	1.8151397	1.3268613	1.0378548
Phase-1 RCT-43	0.8349865	0.8926138	0.8630552	0.864736	0.7819737	0.8186833	0.7400571	0.801907	0.941738	0.911274	0.8377804	0.7581056	0.7601363
Tissue plasminogen activator	0.9364673	0.5375308	1.01183	0.8001902	0.8898391	0.9154534	1.0578601	0.9198898	0.9471833	1.1046176	1.099658	0.9535774	0.9495595
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.2392	1.4143056	1.3813927	1.1535285	0.8262869	0.7435762	0.5849583	0.8285197	0.8550425	0.92207	0.9411432	1.223601	1.0746208
Phase-1 RCT-173	1.0867364	1.2446572	1.2551767	1.076961	0.794446	0.9793871	0.8890103	0.7762404	0.9986395	0.9918329	0.859489	1.0625894	0.9149621
Omitline decarboxylase	1.0766292	1.0435945	0.8351467	1.0005436	1.1510037	1.0711745	1.0331295	1.1564796	0.9782927	1.0409371	0.8948768	0.8205841	0.8427245
Zinc finger protein	0.9433262	1.0575773	0.9849559	1.1685404	0.9003331	0.8968357	1.0073584	0.8719844	0.9578004	1.0957803	0.8991525	1.2171284	1.0234778
CDK108	0.7813435	1.2322638	1.1685582	0.9207891	0.8904851	1.2349443	1.1073584	0.9250045	0.9278348	1.2341365	1.1054887	0.8809254	0.7918075
Phase-1 RCT-117	1.5140814	1.0528492	1.5186309	1.079518	1.637873	1.8335812	1.7035271	1.7347238	1.7165619	1.287607	1.3236941	1.2133511	1.1626661
(Phase-1 RCT 98)	1.1183951	1.050586	1.1537381	1.0156674	1.0995042	1.2098362	1.1651249	1.1150512	1.024894	1.0399411	0.9862378	0.9647739	0.9340025
Aquaporin-3 (AQP3)	0.9611254	1.0465581	1.0107428	0.9872055	0.8189727	0.8742765	0.878429	0.8187251	0.7813461	0.9689041	0.967064	1.0251044	0.510035
Cholesterol esterase	1.3837117	1.5046531	1.3082937	0.996692	1.1219682	1.4348034	1.1860919	1.2044059	1.6297673	1.4920088	1.1865833	1.0251044	0.510035
Ribosomal protein S17	0.975534	1.022062	1.0374516	0.9893299	0.9635388	1.1225786	0.9085316	0.9390409	1.0682522	1.0522528	1.0414035	1.4118933	1.3038825
Poly(ADP-ribose) polymerase	1.1346192	1.2707748	1.1760064	1.2670895	0.9277544	0.8794912	0.8786052	0.8147417	1.0504817	0.9073787	0.8445963	0.9417154	0.8444118
Annexin V	0.9294087	1.2255098	0.9173401	0.9495528	0.9661434	1.1607822	0.8174758	0.9792886	1.1102159	0.9343134	0.9441087	0.905848	1.0116222
Phase-1 RCT-33	1.2540448	1.3018064	1.0874577	1.701169	0.9873421	0.978245	1.0170299	1.053354	0.8871756	1.047625	1.036781	0.9533601	1.46868
Phase-1 RCT-51	0.8197731	0.7657454	0.828942	0.9959782	0.7897525	0.7902884	0.7810313	0.7690275	0.8586264	0.8484219	0.792423	0.9876584	1.0264872
Retinol dehydrogenase type III	1.3563033	1.3682832	1.2232559	1.4808483	1.0682825	1.1292253	1.08811	1.0201948	1.1335521	1.1132063	1.2856058	0.9670559	1.0258584
ATPase inhibitor (rat mitochondrial IF-1 protein)	1.0795641	0.992469	1.0183364	0.9484351	0.9219881	1	0.8513641	0.9400864	1.1516211	1.0524501	1.2758629	1.3856211	1.2045159
Thymidylate synthase	0.9525469	0.8695241	1.0623364	0.8069348	1	1.1909348	0.8595663	0.9733288	1.3294877	1.058956	0.8683172	0.8883226	1.0534143
Interleukin-18	0.7450122	0.8061101	0.9233593	0.8282869	0.8329167	0.9006895	0.8231207	0.8018382	0.8890761	0.9870444	0.868803	1.1107006	1.1346093
Lecithin:cholesterol acyltransferase	1.2380159	1.1217691	1.0310658	1.2385458	1.357016	1.3218193	1.3407273	1.3592429	1.1050258	0.9830476	1.285632	1.1602951	0.9159356
Contrapsin-like protease inhibitor (CPI-21)	0.9146368	0.9002239	0.8927826	0.9011198	1.3611203	1.269535	1.9965596	1.5685295	0.9711784	1.5010462	1.9608271	0.8508722	0.8947504
Proliferating cell nuclear antigen gene	0.9863851	0.966215	1.0750554	0.9811896	0.8534624	0.7788727	1.1742791	0.8373706	0.9234343	0.8689663	0.8519747	0.9964739	0.9832838
Phase-1 RCT-230	0.7914896	0.7898596	0.9883319	0.7545182	0.732672	0.8211702	0.7070233	0.7489534	0.7146993	0.7601582	0.7231069	0.8353342	0.9753009
Cytochrome P450 2D18	1.1131692	1.1961411	1.0298856	1.0851332	1.1026638	1.3708409	1.1959983	1.0623835	1.0770162	1.1523958	1.0731335	0.7714122	0.8510719
Phase-1 RCT-48	0.9983832	1.375162	0.7504953	0.9469585	1.8123668	1.6284145	1.9732299	2.0465758	1.2839134	1.1361322	1.0296986	0.8481712	0.7504509
Phase-1 RCT-292	0.9728045	0.9648497	1.0615058	0.9346814	1.15737	1.2172015	1.1697378	1.1873741	0.8832179	0.9482248	0.9488217	0.8595738	0.7978305
Arginosuccinate synthetase 1	1.27048	0.9842617	1.221726	1.3348238	1.7383666	1.6192597	1.3627461	1.1979805	0.8644568	0.8948703	1.0443792	1.2458588	1.0083305
C-reactive protein	1.0740874	1.1203426	0.9861776	1.2944843	1.762741	1.6754831	1.9088064	1.9616205	1.7033709	1.5059131	1.8174131	0.8996933	0.8925049
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint															
(1)															
Compound-Dose	PEG 5000	PHEN 20	PHEN 20	PHEN 20	PHEN 20	PHEN 20	PHEN 20	PHEN 20	PHEN 20	PHEN 20	PHEN 20	PHEN 20	PHEN 20	PHEN 20	PHEN 20
Animal Number	149	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340
Liver Toxicity Necrosis Classification	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name															
Osteocalcin	1.0289034	0.9500734	0.8434394	0.9710413	0.7396555	1.0156243	1.1085626	1.1582088	1.2378288	1.0670835	1.1118498	1.0224291	1.0411617		
Sclerostin	1.0182971	0.8641033	1.4148134	1.4152936	1.1163179	1.4786596	1.0332574	1.0845861	0.7459799	0.9728928	0.9802951	0.8153669	1.1420785		
Calpain I heavy chain	1.0278369	0.767691	0.8534544	1.4140733	1.0173007	1.2143031	0.9346806	1.1399864	1.208268	2.18331	1.0594839	1.0849239	0.9473743		
Phase-1 RCT-178	1.1192511	0.878417	0.9135468	0.9333717	0.8226535	0.9390476	1.008139	0.9608498	0.8295623	1.0237348	1.1540234	1.0219029	1.1934485		
Phase-1 RCT-107	1.1955937	0.9446107	0.7158433	0.8263736	1.1689981	1.1943121	2.641321	1.0183393	1.0666618	0.8712395	0.8260652	1.0469544	1.4868251		
Heme oxygenase	1.0473125	1.1485048	1.6164268	2.149804	4.180962	3.4831421	2.9883676	0.8218939	0.7883784	0.8727841	0.9448513	0.7951127	1.0520005		
Collagen type II	1.349897	0.7634414	0.9283607	1.1590472	1.2148036	1.1683406	1.0059994	0.6464853	0.6628525	0.8683935	0.9571652	1.0560563	1.1351736		
Phase-1 RCT-81	1.014904	1.1904075	0.9294847	0.761147	0.7607056	0.7894006	0.9344303	1.5260962	1.7599847	1.441407	1.352215	1.4763887	1.4186684		
Glycine methyltransferase	0.9977132	0.9662854	1.2283502	0.8940858	0.8087543	0.8861448	0.9087757	1.2226878	1.2173318	1.1449918	1.068258	1.052538	1.1829597		
Cystatin C	1.2330344	0.9566993	1.0527531	0.9669167	1.3292792	1.4894618	1.4640988	0.9949861	1.1209311	1.1097815	0.8607816	0.9804521	0.997305		
Melanoma-associated antigen ME491	1.0380825	0.9923474	1.9554602	1.1738262	1.0124935	1.3903371	1.0022497	0.8980839	0.7636394	0.9255841	0.9304407	0.9508618	1.0312347		
Phase-1 RCT-146	0.7505556	1.43216	1.067385	0.9008073	1.089746	0.9382038	0.8846059	1.355279	1.0763612	0.8965104	0.9658771	0.9414952	0.8475699		
Gamma-actin, cytoplasmic	1.0651832	0.6901957	0.7920063	0.7698883	0.5659502	0.7326478	0.8672154	0.6416393	0.7013945	0.8657838	1.1308162	0.9389251	1.1087758		
Adenine nucleotide translocator 1	1.484175	0.880469	0.8787622	0.8202964	0.930448	0.8434088	1.0848799	1.2834948	1.2218758	1.0187028	1.2908999	0.9317654	1.2107594		
Thymosin beta-10	1.2020339	1.7776401	0.8562722	0.9875596	1.36687	1.2900769	1.6802658	1.3330091	0.864947	0.9339943	0.8849847	0.7737454	0.8067661		
Insulin-like growth factor I, exon 6	0.8792312	1.0807979	1.1315683	1.1083994	1.063137	1.2491162	1.3246735	0.9934394	1.200883	1.0140277	0.7710784	1.0635295	0.7660577		
Phase-1 RCT-78	1.1227499	0.6409916	0.7204987	0.833751	0.380384	0.5452228	0.7282504	0.735419	1.1202011	0.7635009	0.7570139	0.7757962	0.8622804		
Alpha-2-microglobulin	1.1379485	0.8188951	1.2744132	0.7075291	0.8302208	0.6757565	0.8078093	0.8469842	0.8610163	1.0731874	0.9333382	0.8986077	0.8593808		
High affinity IgE receptor gamma chain (FcεR1γ)	1.0863227	1.044822	0.9631753	0.9668061	1.0022094	0.9658165	1.0648172	1.2370393	1.2231554	1.1371711	1.2503052	1.042019	1.347319		
60S ribosomal protein L6	1.1679251	0.9235202	0.8165347	1.1286193	1.3228652	1.3914987	1.3185809	1.0906109	1.2609106	0.9276891	0.814232	0.814232	0.7849182		
IgE binding protein	0.746018	0.7981218	0.9415221	1.0476595	0.91324	0.826026	1.0007408	0.9505855	0.9760387	0.9685611	0.8789561	0.920586	0.9026585		
Phase-1 RCT-149	1.1436024	1.1970403	2.0691826	0.9281887	0.9391282	1.3219451	0.9399312	0.8673864	1.1497286	1.4182663	1.017046	1.1291597	1.0730568		
Cytochrome P450 2C11	1.0763398	0.767917	0.984815	1.147832	1.5711931	1.5689759	1.4106271	1.2437584	1.1540362	1.1482759	1.2784353	0.9874833	1.2237755		
Uncoupling protein 2	1.025707	1.2395713	0.8927193	1.0389918	0.8318366	0.9820516	1.1515704	0.9823412	1.1037228	0.9760072	0.7791025	0.8418411	0.5754041		
Coilin	0.8463656	1.2330819	1.156562	1.0152532	1.2042309	1.0081581	0.9993583	0.7300552	0.7783041	1.2668655	1.2002424	0.9943005	1.1848084		
Alpha-tubulin	1.6843957	1.7476957	1.1558585	1.2830064	0.2673704	0.5126047	0.4901944	0.5634288	0.7098478	0.9192585	0.2074664	0.3776488	0.4761107		
Stearyl-CoA desaturase, liver	0.9124935	0.9320768	1.0388012	0.9053789	0.8135014	0.7703828	0.854183	0.9283647	1.297035	1.1155844	1.0444516	1.0778705	1.0022807		
Glutathione S-transferase theta-1	0.8985345	0.7616518	0.7199772	1.150677	1.0059587	0.9906598	0.9724857	1.8501295	1.5016895	1.346286	1.5406592	1.4857635	1.5736496		
alpha-1,2-fucosyltransferase	1.0646496	1.1868455	1.0029787	0.9563789	1.4318782	1.3991655	1.3758539	1.0207037	1.0620667	1.087975	1.0734463	1.0704437	1.0406088		
Phase-1 RCT-138	1.1618896	0.7220368	0.9515249	1.3908136	0.9853369	1.2208433	1.1289216	1.3633162	1.3280154	1.265125	1.336384	1.3447627	1.386468		
Phase-1 RCT-295	1.1593385	0.8670247	0.9407809	0.7993289	0.8212537	0.662959	0.8542922	0.9148933	0.836759	0.9986116	1.0474497	0.8834072	0.8054821		
Phase-1 RCT-164	1.1280801	1.2618588	1.2863355	0.8083918	0.7333328	0.7669066	0.7473969	1.5983135	1.2487888	1.1189486	1.1550144	1.1024181	0.8656101		
Alpha-2-macroglobulin, sequence 2	0.8801577	0.8117963	1.2980569	1.422719	1.4536258	1.8290488	1.4036462	0.8067707	0.8937793	0.9793118	1.1563157	1.1467459	1.3056004		
Biliverdin reductase	1.0685014	1.0478873	1.0239031	1.0180455	1.26616	1.2002255	1.2010427	0.8478706	0.6427892	0.782552	0.9468504	0.7659862	0.9428601		
Phase-1 RCT-121	1.0893624	0.8841706	1.1265239	0.8417111	1.1565559	1.0931138	1.1832037	1.343775	1.2038401	1.1457201	1.0842416	0.9738155			
Dynamin-1 (D100)	1.1018654	0.9080533	0.8787786	0.951803	0.7743031	1.0120245	1.0865623	1.0384403	0.9716664	0.9828428	0.9718112	0.9989553			
Phase-1 RCT-192	1.1018654	0.9080533	0.8787786	0.951803	0.7743031	1.0120245	1.0865623	1.0384403	0.9716664	0.9828428	0.9718112	0.9989553			
Fatty acid synthase	1.5809014	1.5656865	1.0517701	0.3794243	0.6037011	0.6150593	0.8838145	0.9953025	0.7656786	0.5195299	0.7602761	0.8211792			
Phase-1 RCT-211	1.082233	0.643942	0.8858543	1.1163471	0.9807769	1.0827056	0.9938599	1.0303864	1.1263247	1.1265479	1.0216662	1.0552953	0.9148423		
Ribosomal protein S9	1.0453675	0.7351016	0.9946228	0.773369	0.813982	0.6243242	0.6676486	0.940093	0.8922199	1.109907	1.2088888	1.1248084	1.1693388		
NADP-dependent isocitrate dehydrogenase, cytosolic	1.2167779	1.0292375	0.971504	0.853093	0.8118866	0.785132	0.9125444	1.1938426	1.0700688	1.0754646	1.0225576	0.8990783	0.8538594		
Phase-1 RCT-57	0.8853091	0.7697977	0.8149334	1.5074744	1.3632966	1.8929595	2.0311847	1.2691727	1.3687741	1.1894745	1.3955855	1.3480895	1.3217778		
Phase-1 RCT-36	1.0349978	1.0912681	1.1212748	1.1998808	1.0674257	1.2063584	1.1354412	1.1091418	1.102863	1.0023121	0.9288635	0.8639761	0.8357016		
Apolipoprotein AII	1.3810918	0.6021411	0.8636146	1.1636849	0.8913027	1.3251402	0.8469037	0.6878629	0.7727451	0.6428627	0.6036339	0.6100757			
Phase-1 RCT-68	0.9425575	1.0278106	0.8839419	1.2339146	1.0290941	1.0809816	1.0468402	1.0837033	1.1440827	1.1570332	1.0182993	1.1531304	1.0504894		

Multidrug resistant protein-2	0.8561704	0.8294577	1.1411386	1.070072	1.17447	1.397472	0.995288	0.8518618	0.7221483	1.067969	1.1651609	1.2226619	1.1739436
Phase-1 RCT-39	1.0133487	0.8974478	1.2369149	1.4162961	1.4373713	1.3780802	1.044143	1.1298518	0.9260905	0.932421	1.1376967	1.0955429	1.2072022
NIPK	1.0437344	1.3450806	0.9720427	1.0358187	1.2839677	1.2591583	1.5744793	0.9812697	0.9394903	0.87725	0.7894709	0.8427293	
FL-ATPase beta subunit	0.9725403	1.6314552	0.8310183	0.7976673	0.6504256	0.6010033	0.8091218	1.2967168	1.6157926	1.105392	1.1232966	1.2896265	1.1705903
Elongation factor-1 alpha	1.1281983	1.3401017	0.7678789	0.6398962	1.1014754	1.0233233	1.0823323	0.0676872	1.219732	0.8983849	0.8687106	0.9050245	0.9104725
Phase-1 RCT-24	0.8831043	0.8936416	0.8445052	1.3789676	1.3012017	1.6399678	1.0235484	0.90716449	0.9457044	0.9871031	0.9814012	1.0813498	1.0550641
Beta-tubulin, class I	0.8899631	0.789272	0.8807753	1.1461882	0.8365943	1.1771588	0.9692588	1.2361909	1.2439154	1.3093246	1.4278208	1.28129	1.3888597
14-3-3 zeta	0.8205252	0.8396151	1.3199108	1.0135484	0.8058768	1.3258454	1.0111315	0.8238129	0.8124888	0.9050912	1.0731206	0.973581	1.1013387
Alpha-prothymosin	1.0192277	0.8096754	0.8303771	1.9331952	0.8432443	1.4608874	1.5061911	0.9213603	1.0548732	0.8880039	0.8833532	0.8320405	0.5284571
Phase-1 RCT-38	0.7804207	0.7970381	0.898784	0.6554292	0.5790879	0.7944019	1.3256979	1.6328278	2.093369	1.6481699	1.1629311	1.0589884	0.7480927
Phase-1 RCT-290	1.0902594	0.8453278	0.5815045	1.2018715	0.5294412	0.7661204	0.6328278	0.8179621	0.8074789	0.9189155	0.9000054	0.9206598	0.8848964
Transitional endoplasmic reticulum ATPase	0.8821053	1.3698071	1.0718691	0.943776	0.9351051	0.8725734	0.9653198	0.879621	0.1309068	0.9115635	1.0112054	0.8009894	0.6908413
Beta-actin	0.5518305	0.7912191	0.6269113	0.9326022	1.2423221	1.1812772	1.6395159	1.0390668	0.9736368	0.7269368	1.0112054	0.8009894	0.6908413
Thioredoxin-1 (Trx1)	1.0553297	0.6380307	0.84276	0.9321508	0.867713	0.9833403	1.0028462	1.3493866	1.3738009	1.143758	1.1883891	1.2665077	1.1813692
Phase-1 RCT-174	0.9842758	1.0903432	1.0723261	0.8871013	0.7646036	0.7983781	0.8112493	0.8324633	1.279029	0.9570757	0.8480532	1.1317686	1.0481069
Beta-actin, sequence 2	0.8374724	1.1301892	0.8552971	1.0644183	0.8207654	1.1818012	1.0309684	1.1818012	1.0309684	1.127659	0.9773815	0.8398216	0.8630678
Phase-1 RCT-109	1.0190637	0.9269736	0.8441471	0.9931528	1.0371422	1.0303215	1.1016867	1.1547353	1.2051399	1.2816981	1.3213768	1.2098131	1.3474108
Phase-1 RCT-154	1.0621507	0.8844948	1.2545762	1.0360023	1.0234758	0.9834861	0.8718742	0.8706316	0.8803257	0.9121558	0.9728951	0.7807736	0.9894243
Hypoxanthine-guanine phosphoribosyltransferase	0.8585377	0.9635972	0.8828099	1.2323058	1.0391074	1.2490537	1.2742615	1.3370832	1.3403425	1.2874739	1.0240201	0.8975225	1.0326848
Phase-1 RCT-213	0.9552508	1.0926272	1.1859899	1.2281487	1.1143667	1.2658327	1.0469623	0.7582536	0.7642087	0.8437048	1.0238827	0.8908346	1.0582463
Phase-1 RCT-260	1.0451534	0.9830123	1.166041	1.407572	1.1576518	1.1234499	0.9033127	0.9219216	0.7716512	0.8723719	0.835575	0.917765	0.9608665
Phase-1 RCT-42	0.7730046	0.8158819	0.9187664	1.652293	0.9605066	1.2350024	1.0139291	1.1548273	1.1262238	1.252319	1.3253886	1.2130663	1.2685112
Phase-1 RCT-293	1.0829529	0.9296207	0.8863475	0.9291803	1.3994697	1.2163569	1.3486031	1.5024742	1.198498	1.200381	1.4789972	1.3402593	1.3257575
Ribosomal protein S8	0.9850563	1.0126342	1.095618	1.2362397	1.3873304	1.2352511	1.360489	1.40115243	1.0982855	1.148	1.0036935	1.1612705	
Pyruvate kinase, muscle	0.9517863	0.8331975	0.8825668	1.0205706	1.091958	0.7136631	1.0674643	1.2059336	0.9923154	0.9947271	1.2150221	1.0624847	1.2513981
Nucleoside diphosphate kinase beta isoform	0.9403613	0.6991579	0.7250822	0.8815806	0.6957271	0.7914571	0.8675094	1.0809847	1.2674762	1.1306401	1.098771	1.0750161	1.4567969
p53CDC	0.7881348	0.8389983	1.3508259	0.86003	1.0635991	1.1360607	0.9767451	0.741497	0.9043712	1.22785	1.121769	1.2956013	1.4052883
Phase-1 RCT-156	0.7101352	1.5163182	0.9132113	0.8128362	0.9138932	0.795027	0.9690437	1.0469623	1.1144736	1.2218226	1.0500057	1.1632013	1.1726009
Ribosomal protein L13A	1.0510298	0.6873503	0.6848729	1.0488789	1.1773363	1.1972297	1.3807391	1.5532859	1.3942051	1.819656	1.3701069	1.0624847	1.2513981
Phase-1 RCT-258	1.0664152	1.2240307	1.1043996	0.9176316	1.1826781	1.1132804	1.0918705	0.8904036	0.9484224	0.810782	1.019828	0.9704149	1.043688
Insulin-like growth factor 1	0.8958096	1.554046	0.8864366	0.6377594	0.6425217	0.5607445	0.67385	0.9591691	0.8350829	0.6881089	0.572593	0.4925339	0.6388749
Cytochrome P450 3A1	0.9822343	1.4735456	0.734779	0.6636278	1.5173103	0.8138249	1.1885111	0.9521074	0.7201294	0.8300013	1.2984931	0.8943005	0.7692694
Ribosomal protein L6	1.0394444	1.0096154	0.9804236	1.4320704	1.1507964	1.481127	1.2421256	1.1919409	1.365067	1.1216959	0.8433927	0.9164012	0.8322158
Organic cation transporter 3	1.0577235	1.0338523	0.9445524	0.9994529	0.9976182	0.9976182	1.0574248	1.2080355	1.2020062	1.27458	1.267131	1.0252182	1.3371798
Calpain 2	1.0060794	0.9791532	1.0812542	1.2394491	1.1848758	1.2934686	1.1743277	1.1880814	1.2147379	1.189931	1.0338526	0.9798665	1.1298864
Phase-1 RCT-102	0.8965221	1.1044443	1.1378043	0.934426	0.682303	0.9019616	0.95261	0.8564128	0.8051286	0.8270408	0.8347714	0.7316352	0.707724
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	1.1563189	0.9828767	0.8898659	0.6990802	0.7413718	0.6494108	0.692866	0.9183648	0.7347441	0.8997524	1.0231089	0.8889274	0.9021213
Phase-1 RCT-227	1.2696497	1.0110458	1.1197497	1.159399	1.01957	1.2690349	1.3559684	0.9018074	1.4272811	1.01869	0.704148	1.1398218	0.7739278
N-hydroxy-2-acetylaminofluorene sulfoxidase (ST1C1)	0.8456219	1.0325595	0.9087158	0.5027654	0.5364251	0.5901848	0.6797214	1.1434051	1.2223845	0.9813951	1.2205179	0.9348475	1.0825053
Cathepsin S	1.094383	1.1169642	1.2224767	0.7571469	1.135351	0.7541432	1.0189323	0.8809963	0.8732019	0.9738257	0.947246	0.9372252	1.1494035
Apelipoprotein CIII	1.1406921	1.1026682	1.1810222	0.829471	0.8878457	0.8725669	0.8507345	0.8988997	1.001025	1.1205373	0.878228	0.772579	0.7462365
Cytochrome P450 2A3	0.9647237	1.3388579	1.5083386	0.747349	1.2286844	0.8063366	1.0232306	1.3031232	1.6327293	0.917736	1.2730938	0.7641947	0.7629216
Cytochrome P450 2C23	1.2861823	1.1580917	0.950424	1.0221078	0.7225106	0.903987	1.0673525	1.1868684	0.8273016	0.8172485	1.0617442	0.7085878	0.8377543
Apelipoprotein C1	0.9456079	0.836313	1.3497448	0.5170944	0.5883837	0.3723785	0.6056783	0.8333466	0.8197776	1.0104177	0.7885436	0.877133	0.5511113
Betaine homocysteine methyltransferase (BHMT)	1.1407607	0.840445	0.6281415	1.1755371	0.5948758	0.8299816	1.5356477	2.3014543	1.7721671	1.1815759	1.0198315	0.7617211	0.708125
Paraoxonase 1	0.9998691	2.189427	1.2371587	0.5498983	0.8105775	0.5350543	0.637017	0.9667667	1.092633	0.8213946	0.7415383	0.765952	0.9024116
Phase-1 RCT-207	0.8677212	0.9564756	1.2306519	1.1014919	1.0934129	1.2990397	1.0815156	1.277399	0.7322838	0.8810274	1.0633217	0.9514113	1.0384041
Cathepsin B	1.0195094	1.4396886	0.8268861	0.7147421	1.3668835	0.9326886	1.169599	1.1724919	1.2499205	1.102451	0.958917	1.0166819	1.0346282
Phase-1 RCT-144	0.9425872	0.9776388	1.0940908	0.9177287	0.9054899	1.0146012	0.9340063	0.9090613	0.8878967	1.0380136	1.1121991	1.1004653	1.0910759

Alpha-1 microglobulin/bikunin precursor (Ambp)	1.1076173	1.2322185	0.9077784	0.7694507	0.720576	0.7951389	0.9435417	1.543811	1.7922391	1.4725221	1.3794248	1.4971727	1.4347867
Cylin D1	1.1350865	1.0115763	1.0591018	0.5174467	0.6548554	1.6550831	0.7427808	0.8576438	0.7731614	1.1270787	1.6311865	1.1043688	1.5152342
Presenilin-1	0.6799074	2.8712456	1.1700162	0.4148644	0.7307056	0.8385416	0.9766175	0.8171002	0.7293739	0.8733691	0.4830053	0.4399568	0.4946043
Protein tyrosine phosphatase, receptor type, D	0.989798	0.9579482	0.9772212	0.5435212	0.6729661	0.4941345	0.5881404	1.0640041	1.1748524	0.821158	0.8389864	0.9111501	0.8967124
Multidrug resistant protein-1	0.6347026	0.743039	0.7033379	1.2281089	1.3661748	1.3389136	1.3889136	0.7471545	0.7891682	1.0102826	1.0469554	1.23671	1.1899099
Cathepsin L, sequence 2	1.0564889	0.6380027	0.9487014	1.0776591	0.9388163	1.0133058	1.0210613	1.3513954	1.020014	1.000268	1.1645195	0.9089876	0.9895866
JNK1 stress activated protein kinase	1.0660213	1.1860031	1.0454952	0.5866502	1.0175093	0.6970788	0.8419678	1.0420248	1.3084982	0.9184116	0.9341751	0.8389974	0.8133
Phase-1 RCT-43	0.7782774	1.2461485	0.9250667	0.8946984	0.9309037	0.7791606	0.8632508	0.8508037	0.8576536	0.9004657	0.9120678	0.8135497	0.7831045
Tissue plasminogen activator	0.9801409	0.963293	0.7167196	1.1304954	0.8114285	0.9121836	0.8736928	1.317346	1.8515704	1.0566923	1.1177018	1.0212727	1.1875848
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.0378011	0.8226929	1.0023693	0.7316123	0.5889649	0.6240776	0.7091354	1.0002911	0.8466387	1.0416236	1.1770309	1.0510105	1.2510171
Phase-1 RCT-173	0.8574911	0.9295115	1.2112273	1.104633	1.059144	1.1023242	1.0016954	0.6965789	0.8278744	0.9205803	0.9641349	0.8877454	1
Ornithine decarboxylase	0.8493784	0.647416	1.1015438	1.3316555	1.0104629	1.9809328	1.3190329	0.8325827	0.7489302	0.8687818	1.0407149	0.8794793	0.981844
Zinc finger protein	1.0635189	1.0276921	0.9406398	1.0540551	0.8158645	0.8610111	1.1003944	0.6431108	0.6004228	0.8158994	0.8214053	0.7578651	0.8787563
CDK108	0.8822965	0.7407461	0.9209732	1.1788285	0.9627789	1.2486569	0.9827473	1.0215291	1.0144691	1.1491207	0.9795531	1.083368	0.8576038
Phase-1 RCT-117	1.2707534	0.9195736	0.7391862	1.3817134	0.7957573	1.0485245	0.9929332	1.1428003	1.6783105	1.3087242	1.2818054	1.3032497	1.2086808
(Phase-1 RCT 98)	0.9585893	1.2060589	0.8741447	0.8696716	0.8490261	0.8974338	0.9671729	1.2351733	1.3398191	1.1483765	0.934557	1.1274978	0.8767912
Aquaporin-3 (AQP3)	0.9813522	0.9864882	1.1888489	1.1968999	1.0089343	1.27768	1.2750177	1.0275537	0.9749036	1.013484	0.8382462	1.0349002	0.8159887
Cholesterol esterase	0.5544984	1.5080776	0.7683798	0.6572022	1.004131	0.6837363	1.2933774	0.9207993	0.9722043	1.3914382	1.2297682	1.2638888	0.7805415
Poly(ADP-ribose) polymerase	1.1545619	0.8970761	1.1338184	0.9902797	0.9451737	0.9626401	0.8511589	0.9946399	0.9946399	0.9858599	0.9074903	0.8737869	0.8390088
Annexin V	0.8703224	0.8970761	1.2797171	0.8998813	0.9501181	0.9213882	0.7817976	0.9995727	0.9814841	1.092444	1.3679475	1.1459996	1.2141554
Phase-1 RCT-33	1.1180042	1.2728882	1.0490067	1.2180637	1.0483227	1.1998285	1.0212491	1.0939077	1.0900601	0.9817615	0.9826965	0.9167703	0.9877515
Phase-1 RCT-61	0.9828883	0.8525206	0.9091899	0.7108266	0.6044076	0.8459127	1.1620815	0.9039533	0.7570859	0.9195222	1.1663343	0.8229175	0.7448668
Retinol dehydrogenase type III	1.2182301	0.8799918	0.8718934	0.7035898	0.6049579	0.5620342	0.759127	1.1660267	1.1978148	0.9641266	0.8483772	0.887214	0.8488165
ATPase inhibitor (rat mitochondrial IF1 protein)	1.4439021	1.0374868	0.9028839	0.5811643	0.5887692	0.4745976	0.8829346	1.1646835	0.713587	0.9010187	0.8277928	0.8301874	0.7423163
Thymidylate synthase	0.9862826	0.8992364	1.9247	1.0930145	1.1190742	1.4302899	0.8945941	0.6941422	0.7616948	0.8738253	1.1799157	1.2255076	1.2490703
Interleukin-18	1.0931238	1.0684025	1.7537163	1.0584988	1.3890294	1.2201375	0.9801465	0.986651	1.1616725	1.0680219	1.2114601	1.062499	1.3449333
Lectincholesterol acyltransferase	1.2239821	0.9000787	0.7796223	0.9538482	0.8225337	0.8327223	0.8704941	1.2988982	1.3278733	1.0477657	1.1688806	1.2489554	1.3080289
Contrapsin-like protease inhibitor (CPI-21)	0.8859232	0.9109203	0.720101	1.155535	0.7458395	0.892872	0.8561588	1.3228254	1.7467638	1.0318791	1.0833223	0.9976169	1.0835694
Proliferating cell nuclear antigen gene	1.00898	1.020274	1.7139033	0.925612	1.133122	1.2807806	0.9592966	0.7560299	0.8076167	1.0207137	1.0127549	1.0709391	1.117235
Phase-1 RCT-230	0.9607096	0.9348319	1.3900098	1.1013391	1.4236934	1.3708019	1.0212104	1.0073223	0.8271216	0.9046579	0.9865127	0.946827	0.9231017
Cytochrome P450 2D18	0.658903	0.6977887	0.7778656	1.7464085	1.5186303	2.2032201	2.5513394	1.6051362	1.5888088	1.2745472	1.4872073	1.4803327	1.4230059
Phase-1 RCT-48	0.9982773	0.7736548	0.8951057	1.3786862	0.8827195	0.942738	1.206217	1.3161694	1.6231503	1.38229	1.1207651	1.0740082	1.1636014
Phase-1 RCT-292	0.9422234	1.0790194	0.9975053	1.011346	0.9296608	0.9462437	0.9635879	0.899762	0.8779519	0.9182891	0.9710051	0.9059021	0.9483326
Argininosuccinate synthetase 1	1.255965	1.2759048	0.9833063	1.1717914	0.8748613	1.018888	1.1448914	0.8441646	1.0116752	0.886862	0.6610183	0.5762014	0.6516972
C-reactive protein	0.9291207	0.5526388	0.7796146	0.438216	0.3770891	0.4115631	0.5066624	0.8916302	0.9845294	0.7416801	0.5568314	0.5668739	0.622127
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint													
(1)													
Compound-Dose	QUIN 25	QUIN 25	QUIN 25	QUIN 100	QUIN 100	QUIN 100	STRZ 20	STRZ 20	STRZ 20	STRZ 75	STRZ 75	STRZ 75	TAM 50
Animal Number	2547	2548	2549	2557	2558	2559	1727	1728	1729	1737	1738	1739	1447
Liver Toxicity Necrosis Classification	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name													
Osteocalcin	0.87124	1.0061376	0.9280635	0.9779808	1.0351181	0.9858047	1.0490184	1.2243099	1.2246249	1.0846802	0.8574519	1.1001284	1.1097194
Stathmin	1.0244119	0.9816406	0.9505481	0.9625592	1.0247386	0.9737765	1.0278847	1.1039338	1.0773308	0.9941534	0.8609514	0.8300368	0.8192716
Calpactin heavy chain	1.2772483	1.0442889	1.1949829	1.0275662	0.8655668	0.9705727	1.0815595	1.3760517	1.0408756	1.0677018	0.9151135	0.9458525	1.0380108
Phase-1 RCT-179	0.894759	0.9816111	1.1124415	0.9842554	1.03769	1.0833944	1.0135547	0.7268812	1.1213828	1.0825869	1.2493532	0.8517349	1.2327086
Phase-1 RCT-107	0.9576957	0.9320853	1.1492053	0.9083678	0.9576157	0.9573544	1.1296818	1.4496894	1.1266361	1.251772	0.9089215	1.2208614	1.1506951
Heme oxygenase	0.9951338	0.8956893	1.2546574	1.0665464	1.0097294	1.0589777	1.0266395	1.0108157	0.9237824	1.0942684	0.7678056	0.7698645	1.0091881
Collagen type II	1.1145421	1.0591134	1.099322	1.0091171	0.9705653	0.8733599	1.0801872	0.9237824	1.167401	1.0942684	1.0918645	1.0110316	1.0110316
Phase-1 RCT-81	0.8846574	1.0665097	1.120175	1.0881356	1.0996834	0.9226543	1.0085319	1.197736	1.0085053	0.9978987	1.0666089	1.0332931	1.2653428
Glycine methyltransferase	0.9258677	0.9260165	1.2728403	0.9241019	0.9406163	1.0522039	1.8285745	1.2149953	1.6185144	0.9106805	1.6376675	1.31975884	1.234487
Cystatin C	0.8494524	1.1330376	0.9185944	1.0688005	1.1172538	0.9043927	1.3013784	0.7723018	1.0771463	0.9284935	1.0528097	1.2012771	0.9273607
Melanoma-associated antigen ME491	0.9058779	0.9750289	1.0864704	0.7817388	1.0916529	0.9286231	1.0497285	1.1674352	0.9813744	1.4166987	0.9826196	0.9821296	0.9183864
Phase-1 RCT-146	0.9441484	1.0135881	0.9499753	0.8589929	0.9796795	0.8998202	0.9368497	1.4682918	0.9239154	0.8450403	0.5622723	0.828125	1.2557349
Gamma-actin, cytoplasmic	1.4190978	0.6678903	0.7518075	0.7479978	0.608466	0.8468062	0.8932847	0.717491	0.8677113	0.9429455	0.8279779	0.961109	0.8413016
Adenine nucleotide translocator-1	0.9652854	1.110091	1.0536759	0.8515291	1.0314013	0.9750768	0.9197627	0.5842528	0.7060467	0.8273255	0.9151545	0.7424973	0.7975672
Thymosin beta-10	1.0707306	1.074904	1.2270372	1.1195984	0.9550287	0.990432	0.9950662	0.7805877	0.905291	0.8687076	0.9293428	0.8103728	0.7926056
Insulin-like growth factor I, exon 6	1.285448	0.7634837	0.848972	1.2487368	1.0718781	1.3255228	0.9953174	0.6531724	1.1393111	1.2216874	1.394153	1.0300838	1.1137136
Phase-1 RCT-78	0.8194278	1.0923178	0.965971	1.0544497	1.0257162	1.0459599	1.0793059	1.0694075	1.119858	1.0477748	1.0511342	1.0335469	1
Alpha-2-microglobulin	0.6038681	0.814335	0.8602484	0.877608	0.8561148	0.9326257	0.836197	0.5447074	1.0485274	0.9972873	1.3385085	1.2189463	0.9489955
High affinity IgE receptor gamma chain	0.8489114	0.891618	0.886505	0.893115	0.9024923	0.8377456	1.0762997	1.0050336	0.9270305	1.1158305	0.8600115	0.9542303	0.9032592
FcεR1(gamma)	0.8227094	1.0527912	0.7582928	0.8639137	1.0392079	0.9464871	0.9128224	0.6358504	0.7935085	0.9003246	0.8792679	0.6969312	1.200544
60S ribosomal protein L6	0.9678249	0.989683	0.9295957	0.9295957	0.934714	0.8102276	0.9548304	0.9665805	0.9267109	0.9735124	1.0107687	0.955669	0.9408057
IgE binding protein	1.2183501	0.8742385	0.7738893	0.988423	0.995736	0.8900275	1.3018314	1.1589658	1.1157315	1.2074043	1.2581483	0.9882579	0.9882579
Phase-1 RCT-149	0.5667465	0.9851209	0.9934037	0.8990396	0.8945202	0.8471327	0.7363272	0.8320344	0.9201089	0.6984519	0.8527751	0.9220443	1.0105075
Cytochrome P450 2C11	1.0543463	0.8991804	1.110257	1.04138	0.9403235	1.0517151	1.0674508	1.248089	1.0079627	1.0264204	0.8022556	0.8914604	0.838153
Uncoupling protein 2	0.929557	1.14207	1.0610856	1.0171806	1.0534307	0.8439942	1.1961728	0.7707847	1.1284621	1.048428	1.228448	0.8281398	0.7789225
Colicin	1.175886	1.0189536	1.1423062	0.9885341	0.9461383	1.0416632	1.0472834	0.8482105	0.9138956	0.8726882	0.8856475	0.9958774	0.812558
Alpha-tubulin	2.8752098	1.2012873	1.7125056	1.314773	0.6519362	0.9680017	1.2502089	0.4238961	0.801337	0.351504	0.561842	0.5289744	0.3743452
Stearyl-CoA desaturase, liver	0.8726201	1.1257445	0.9794065	1.6199678	1.3282545	1.5281242	1.2650352	0.8867731	1.0399605	1.1985623	1.419214	1.1561726	0.8764895
Glutathione S-transferase theta-1	1.06556	0.9605911	1.0688237	1.445013	1.2049645	1.0600039	0.8766788	0.763767	0.7759068	0.9222857	0.8655344	1.1081831	1.3813348
alpha-1,2-fucosyltransferase	0.9841272	0.9590592	0.9556988	1.0190032	0.895928	0.9507688	1.2377193	0.9917626	0.9614513	1.0408947	1.12392	1.0283933	0.9366307
Phase-1 RCT-138	1.0071126	0.9982767	1.1167892	1.2895762	1.1234297	1.036579	1.0902256	0.8069192	1.1551033	1.2538476	1.2768486	1.6037201	1.0451893
Phase-1 RCT-295	0.9729548	1.248504	1.2258366	1.0511123	1.0485944	1.077022	0.9102571	0.9007969	0.8893122	0.4819813	0.8871523	0.8082184	0.9695705
Alpha-2-macroglobulin, sequence 2	0.8235409	0.8394044	0.8637345	0.9016498	0.954121	0.8472152	1.018524	1.1320113	1.1148374	1.0450226	0.8621436	1.2281271	1.0839428
Bilirubin reductase	1.060894	1.0101516	1.0917469	0.9856123	0.9753521	0.9959527	0.9484281	1.4070207	1.0989919	0.9044813	1.0074707	0.9906388	1.2151084
Phase-1 RCT-121	1.0018616	0.9248007	0.9150295	0.9790869	1.1723466	0.9868847	0.9517392	1.0532557	0.9839483	0.8410542	0.8303798	0.7348307	1.0129507
Dynamin-1 (D100)	0.956245	1.0382197	0.9485353	1.0593034	1.0393091	0.9658502	1.046778	1.2584635	1.0753074	0.9846917	1.0697768	0.9802912	1.1671246
Phase-1 RCT-192	0.71831	0.9986442	1.0022706	0.8807884	1.0060437	0.8520593	0.9611827	0.7784321	1.1749835	1.2595668	1.0878023	0.9729429	0.9834151
Fatty acid synthase	2.249205	0.9769117	1.3093882	0.8207914	0.5617477	0.5295592	1.4409382	0.8068292	0.8486362	0.4189462	0.7214631	0.6044751	0.5490401
Phase-1 RCT-211	1.0239049	0.9990471	0.9877148	1.1635185	0.8086618	1.0357441	1.1626976	1.0862466	0.8356423	0.9874293	0.8917545	1.2570667	1.0998078
Ribosomal protein S9	0.9224803	1.0465045	1.23451	1.131252	1.1284793	0.984407	0.93231	0.6152145	0.7712128	0.8963983	0.9071878	0.9110087	0.9955337
NADP-dependent isocitrate dehydrogenase, cytosolic	1.0641409	1.0908653	1.1275893	1.1242539	1.0193512	1.0633465	1.0265496	0.6011269	0.9034246	0.9382711	1.0917659	0.7865609	0.9114295
Phase-1 RCT-57	1.1173627	0.9631972	1.1296886	1.1296886	1.0730482	1.1471978	1.017943	1.2077428	0.9802887	1.0076786	0.9593596	0.8439596	0.9368455
Phase-1 RCT-36	0.97425	0.9278935	0.9889395	1.0122712	0.8727641	0.897801	0.9734428	1.1475652	0.9298433	0.8410542	0.982149	0.8733507	0.7828921
Apolipoprotein AII	1.1172698	1.2497916	1.031308	1.0499594	1.0148792	0.9565374	0.9210587	0.4591856	0.7694587	0.5248302	0.6477222	0.7374536	0.4371707
Phase-1 RCT-68	1.1161436	0.9828708	1.0767516	1.0484443	0.9508151	0.983961	0.9786213	1.2533047	1.0647455	1.1169829	1.0237498	1.12285	1.2534204

Multidrug resistant protein-2	1.0364275	1.057535	0.9755326	1.0921131	1.0364594	1.5300651	0.9445586	1.1542767	1.3571364	1.6923106	1.5719404	1.8383039	0.9097399
Phase-1 RCT-39	1.0874932	0.9257468	1.023615	0.9541944	0.9150403	1.0613635	0.9301108	1.0411807	1.031501	0.8240368	0.9467366	1.0361418	0.9921731
NIPK	1.2062012	0.8373175	0.9700717	1.1382315	1.0284169	1.1234214	1.0294342	1.212319	1.2368623	1.1556828	1.1322999	1.0431447	1.0086354
F1-ATPase beta subunit	1.118846	1.0445298	0.9758936	0.9947143	1.0098252	1.1680216	0.8456343	0.9065756	1.2134238	1.2493954	1.313873	0.7734334	1.2044052
Elongation factor-1 alpha	1.0089321	0.9850327	1.0663947	1.099645	1.001601	1.076179	1.1711075	0.535965	1.0601074	1.1081764	1.0798011	1.1194838	1.2044052
Phase-1 RCT-24	1.1833657	0.8660076	1.1743592	0.8831902	0.9616442	1.2509942	0.9532853	1.19227	1.3435928	1.4411497	1.0845702	0.845805	0.7254335
Beta-tubulin, class I	1.1143123	0.802021	1.2649281	0.9371563	0.8791301	0.8686442	1.1171148	0.9235638	1.2314028	1.5108888	1.5823231	1.1758678	0.7254335
14-3-3 zeta	1.3605899	1.075881	1.3362981	1.0582266	0.9791054	1.0589582	1.1375136	0.8351129	1.3160336	0.8426262	1.3228041	0.8586818	1.0741784
Alpha-prothymosin	1.008643	1.1576872	1.1131417	1.0551318	1.0957948	0.9989584	1.2271326	0.6266007	0.8762229	0.9788357	1.2203687	0.6839869	0.7523959
Phase-1 RCT-58	1.6284133	1.1346253	1.4901221	1.2741704	1.2089403	1.1701365	0.7601047	0.8289722	0.8369899	1.2482505	0.6407521	0.6407521	2.199484
Phase-1 RCT-290	1.12920842	1.2397969	0.8959155	1.1423194	0.8319473	0.8060568	1.0530523	1.216917	0.8891509	0.8660626	0.7687791	1.053919	0.5828305
Transitional endoplasmic reticulum ATPase	1.1196365	0.8987766	1.1829739	0.9667239	0.9787772	1.0155425	0.763761	0.7972375	1.1952288	1.0427264	1.3643146	1.041302	0.8188754
Beta-actin	2.151073	0.8211959	1.2349494	1.019095	0.5054078	0.9500377	1.495564	0.7766707	1.3493251	1.031318	1.1800225	1.041302	1.167232
Thioredoxin-1 (Trx1)	0.8324468	0.9560965	0.9033428	1.0207506	1.0499303	0.8537457	0.9546966	0.6833471	0.9547299	0.9126272	0.9145474	1.0575657	1.167232
Phase-1 RCT-174	0.9822114	1.0420951	1.0200712	1.0572128	1.1781574	0.9806683	0.980291	1.3279877	0.9541307	0.974008	0.7990093	0.7864783	0.7687521
Beta-actin, sequence 2	1.2361727	0.9723044	1.0433387	0.9812766	0.8195032	0.9281802	1.0319701	0.6950991	1.213172	0.974008	0.6554295	0.8151494	0.950477
Phase-1 RCT-109	1.0627499	0.9864537	1.2483494	1.1180122	0.9772245	1.0024496	1.0092289	0.7466195	1.011249	1.1535703	0.6554295	0.919185	0.9970856
Phase-1 RCT-154	1.0889157	1.073549	1.0663593	0.9366992	0.9888941	0.8999308	0.9925309	1.0221314	0.9822736	0.8679116	1.0314462	0.8180467	0.8655247
Hypoxanthine-guanine phosphoribosyltransferase	1.1663437	0.9870846	1.2400029	1.0147275	1.0128499	0.9676011	1.0925663	0.8808939	0.9867009	0.7686753	1.0247474	0.8022641	0.7501986
Phase-1 RCT-213	1.0833751	0.9596611	1.015372	0.9628117	0.9720898	0.9493774	0.9698361	1.0360441	1.0093895	1.0619203	1.0424808	0.8578984	0.8144141
Phase-1 RCT-260	0.9290273	0.8660047	0.8271887	0.8113275	0.868847	0.9066597	0.9145643	1.4283108	0.9001828	0.8820762	0.8781861	0.8603414	1.117077
Phase-1 RCT-412	1.2418811	0.8673012	1.1273302	1.0215988	0.9531941	1.005791	1.4545006	1.0014223	1.5404131	1.3102162	1.3639993	1.2503355	0.8398378
Phase-1 RCT-293	0.8958671	0.9677703	0.9735542	0.998509	0.9652482	0.928076	1.0345396	1.2253299	0.9824399	1.0346074	1.0336562	1.0002501	0.8802935
Ribosomal protein S8	0.768013	0.9260868	0.9730623	1.0277543	1.1363661	0.9820209	1.0823162	0.6296294	0.9370275	1.2287263	1.0598046	1.3393131	1.1447592
Pyruvate kinase, muscle	1.022166	0.9787921	1.03219175	0.965848	1.0054578	1.048399	1.1552222	2.439358	0.9789357	1.1632777	0.870942	1.2145262	0.8967425
Nucleoside diphosphate kinase beta isoform	1.0572097	1.1019281	1.0888126	1.048572	1.120888	1.0608212	1.020418	0.7624617	0.9656604	1.2011223	1.11707	0.9557452	0.9557452
p55CDC	1.1844106	0.9420644	0.9777188	0.8622025	1.0350207	1.0278579	0.8806158	1.541121	0.9231467	0.9817928	0.8388568	0.9412796	1.1426785
Phase-1 RCT-156	1.0487988	1.0457848	1.280381	0.9387963	1.0381737	0.9986454	1.1244341	1.0622237	0.6585947	1.0828391	1.0685302	1.0723513	1.3464487
Ribosomal protein L13A	1.0148119	0.9741302	1.0681762	0.9660126	1.0178020	0.9424304	0.9091457	1.0584347	0.934997	0.9664717	1.2039323	0.868119	0.8301703
Phase-1 RCT-258	0.9071596	0.8528556	0.8150179	1.1859654	1.1193604	1.1508737	0.8272933	0.4814515	0.7909744	0.9408259	0.8023364	0.857111	0.7364559
Insulin-like growth factor 1	0.3925169	0.9607139	0.6342781	0.9565345	1.3860658	1.324939	0.9093558	0.5025945	1.6286998	1.3637637	1.3501229	1.8831031	1.1539704
Cytochrome P450 3A1	0.930419	1.0100587	1.0367974	1.0250086	1.0438628	0.78285	1.0488125	0.6967189	1.0128479	1.218231	1.0891551	1.21882	1.1244115
(Ribosomal protein L6)	0.8591428	1.0636623	1.0978192	1.0406392	1.0527525	0.9585852	0.8784431	1.1575669	0.8524823	0.8186814	0.6868284	0.8279087	1.1732975
Organic cation transporter 3	0.933829	1.0178577	0.9760999	0.9417757	1.0243604	0.9639419	1.096472	1.1774316	1.063392	1.1755668	1.0184402	0.3159946	1.0436554
Calpain 2	0.9256684	0.8741615	0.834073	0.9081425	0.9823737	0.9372578	0.9105169	0.7862169	1.052764	1.0383259	0.9736512	0.9444336	0.8936551
Phase-1 RCT-102	0.7061874	0.8916178	0.9114829	0.9228234	0.947165	0.9992876	1.00976	0.8774909	0.9818037	1.045352	1.0540717	1.3837552	1.2779714
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.6957379	1.0906979	0.9052244	1.092621	1.0803473	0.9060479	1.1952057	0.9457889	1.3600143	1.4718487	1.6373597	1.455554	1.2004902
Phase-1 RCT-227	0.6399825	0.8990871	0.9522612	0.9430827	1.1593462	1.0537323	1.0655216	0.6829965	0.8853972	1.0481178	1.0879874	1.4004521	1.358805
N-hydroxy-2-acetylaminofluorene sulfotransferase (ST1C1)	0.8393835	0.9903161	0.8289139	0.7689259	0.8096504	0.8718899	1.0151666	0.8455964	0.8761063	1.0532115	0.9474124	0.9004108	0.7980229
Cathepsin S	1.0618973	1.1791218	1.1409535	0.9065248	1.0193423	0.8875141	0.977502	0.7782484	0.8897858	0.8543825	0.7824168	0.763236	0.8986655
Apolipoprotein CIII	0.9616831	0.8240073	0.8881193	1.0183163	0.7661699	0.8518028	0.8927728	0.8806025	1.0009958	0.8361911	0.9072921	1.5547249	0.711871
Cytochrome P450 2A3	0.8748301	1.0480505	0.8232759	1.0420192	1.0558982	1.068892	1.0559592	0.4888257	0.9176894	0.957059	0.8245154	1.0437006	1.0437006
Cytochrome P450 2C23	0.605088	0.7016537	0.9113973	1.0345109	1.002847	0.8613769	0.9054194	0.5518714	0.8656991	1.1080223	1.2730874	1.0056074	0.86538314
Apolipoprotein C1	1.3380599	1.2377964	0.9175161	1.2336817	0.8187834	0.8016458	1.3018326	0.7121674	0.7502647	0.7619162	0.680189	1.258894	0.385592
Betaine homocysteine methyltransferase (BHMT)	0.7414972	0.8478944	0.7690818	0.9065319	0.937588	1.080976	0.959187	0.4959338	0.8150122	1.0867616	1.0182929	1.1741098	0.924221
Paraoxonase 1	1.2053281	1.2114515	0.9803304	1.0045472	1.0249842	0.9452272	0.969941	1.0882787	1.0138552	0.9142367	0.97074	0.7682789	0.8986655
Phase-1 RCT-207	1.1328993	1.1619825	0.9424266	1.0891932	1.116098	1.1708552	0.9400481	0.8852943	0.9141158	0.9743378	1.2194289	1.0277311	0.984421
Cathepsin B	1.033265	0.9472964	1.010063	0.956241	0.9738556	0.9807126	0.9208791	1.1007382	0.9527016	0.9518838	0.8999145	0.9336354	0.8637217
Phase-1 RCT-144													

Alpha-1 microglobulin/bikunin precursor (Ambp)	0.8408277	0.0909973	1.1167821	1.1625497	1.2028047	1.0130803	1.1407892	0.5978957	0.9831958	1.0620427	1.2687117	1.2649356	1.35296
Cyclin D1	0.8375268	0.898252	0.8412208	0.8218834	0.9682389	0.9620912	0.7229445	0.8265954	0.8189215	0.9320683	1.2941844	1.5378081	1.0854852
Presenilin-1	0.923374	1.0545616	1.0521121	0.8568409	1.3601305	1.3173056	1.3232665	0.484315	1.2477808	1.2320577	1.3458834	0.7070813	0.984311
Protein tyrosine phosphatase, receptor type, D	0.8122816	0.8754633	0.8574596	1.0585487	1.045925	0.8708574	1.1217338	0.4988497	0.9671001	0.9360541	1.0788951	1.1031088	0.7779771
Multidrug resistant protein-1	1.0241698	1.0195229	1.1085025	1.1043311	1.1114765	1.5355392	1.0328981	1.1526083	1.3739319	1.7092675	1.6100763	1.1708353	1.0716873
Cathepsin L, sequence 2	0.9527039	1.0483936	1.0806347	1.0354873	1.0271924	1.2451468	1.1064475	0.7247914	1.0071783	1.2597213	1.1047615	1.236479	0.7757663
JNK1 stress activated protein kinase	0.7613252	0.9381133	0.8284442	0.7118857	0.7118857	0.8284442	1.112221	0.8714781	0.9520723	1.0123389	1.0133944	1.5970281	0.7066165
Phase-1 RCT-43	1.2165002	1.0743041	1.1240122	1.0393558	0.9800261	1.089034	0.8629301	0.6833943	0.9283462	0.8706233	1.0325038	0.8365396	0.8304468
Tissue plasminogen activator	0.9561855	0.9272085	1.0160311	0.9865545	1.0425472	0.9399273	0.8905464	1.2890865	0.8920277	0.9008835	0.7851425	0.8474498	0.7998607
Ubiquitin conjugating enzyme (RAD 6 homolog)	0.9219541	1.0399281	1.1252346	0.9983574	1.1255294	0.9826555	0.932471	0.9839752	0.8841319	0.8349588	0.8375875	0.8277871	1.0226165
Phase-1 RCT-173	1.1017287	1.1501344	1.1152211	0.9731205	1.182882	1.0616305	0.9805058	1.0653462	1.0307723	1.0381725	1.001258	0.7884076	0.7386677
Ornithine decarboxylase	1.3267756	0.8327698	1.1366684	1.0894758	0.9187256	1.1856463	1.0970141	1.4083083	1.13973	1.0931742	0.9918629	0.9304879	0.8926551
Zinc finger protein	0.9833363	1.0729427	1.0280254	1.0056078	1.0487918	1.0579873	0.9568813	1.1011443	1.027155	0.8855538	0.7641532	0.7463168	0.7126847
CDK108	0.9198505	1.06265	1.0953242	0.9206075	0.9425005	0.8619888	1.0373356	1.3546984	0.9100292	1.1718824	1.153288	1.660123	1.5248212
Phase-1 RCT-117	1.3094491	1.5118849	1.4948909	1.3645344	1.3478218	1.0584127	1.0569247	1.1379282	1.0188696	0.8059962	1.0740578	0.9854531	1.0851129
[Phase-1 RCT 98]	1.0118723	1.072027	0.9525438	0.9473608	0.9694406	0.8656173	0.8784694	1.2580825	0.9845998	0.9924685	0.9605182	1.0268133	0.9774157
Aquaporin-3 (AQP3)	0.9686271	1.0059768	0.9218134	0.9285013	0.9989931	0.9228624	0.9684445	1.2247405	0.978438	0.9773159	0.90425	0.9489385	1.1723045
Cholesterol esterase	0.6157599	0.8567485	0.8009426	0.844155	1.2498719	0.9287296	0.9685349	0.6810333	1.127382	1.3478512	1.4489516	1.0978162	0.5924354
Ribosomal protein S17	0.7805191	0.8930048	0.939185	0.9590368	1.1023302	0.8861343	1.0372964	0.5978484	0.871912	1.3727875	1.053949	1.45261	1.0143808
Poly(ADP-ribose) polymerase	1.1302532	0.9342768	1.1734868	1.0391628	0.997531	0.8721065	1.1117812	1.2284114	1.3776127	0.9782076	0.9692534	0.9392816	0.8590864
Annexin V	0.9189726	0.9559153	1.3144962	0.9665352	0.9840533	1.098367	0.9222842	1.1601754	1.0083307	0.9891409	0.6663282	0.9470701	1.1856428
Phase-1 RCT-33	0.95493	0.9088275	1.0404282	1.1144661	0.7081248	0.8537341	0.900999	0.7302124	0.9235608	0.7809526	1.0752071	0.9178137	0.7096167
Phase-1 RCT-81	1.4670745	1.0881618	1.3119195	1.036919	1.0348488	1.0725749	0.9478473	1.1603976	0.9172168	0.8930378	0.8905908	0.9478443	1.0494458
Retinol dehydrogenase type III	0.8233828	1.1329081	1.1148117	1.0863842	1.1140201	1.240792	1.0083354	0.620494	1.1201437	0.9638237	1.3935577	0.8439047	0.9883964
ATPase inhibitor (rat mitochondrial IF1 protein)	0.557388	0.8117026	0.7755773	0.9000158	0.96076	0.8885247	0.8720537	0.4915172	0.8198974	0.9257114	1.0413243	0.757846	0.7782897
Thymidylate synthase	1.0118008	0.9592188	0.9419111	0.9946287	1.2154045	1.0566678	0.9017718	1.1920702	0.925353	0.8912879	0.7942869	0.7462552	1.5781535
Interleukin-18	0.9280031	1.030028	0.9996182	0.8702235	1.0327027	0.9210383	0.8179217	1.5821973	0.8365701	0.778744	0.832142	0.8818047	1.3892351
Lectin:cholesterol acyltransferase	1.0288754	1.0609945	1.0068786	1.0860463	0.9450168	1.0918592	1.0269694	0.6289421	0.9631896	1.0543888	1.3492268	0.8905996	1.030799
Contrapsin-like protease inhibitor (CPI-21)	0.9729078	0.9074876	1.1179221	1.2513523	1.3105705	1.1321114	0.8615128	0.4488347	0.8873984	1.0438302	1.1208612	1.1318318	0.5910108
Proliferating cell nuclear antigen gene	0.9365104	0.9523606	0.8949777	0.9196579	1.0295424	1.0174639	0.8652583	1.239071	0.9533623	0.9164068	0.7495555	1.0721165	1.565125
Phase-1 RCT-230	0.9311258	1.0279263	1.0636965	0.838449	0.8645948	0.8119742	0.8886616	1.5155922	0.8725598	0.8174333	0.7342482	0.7855581	0.9776887
Cytochrome P450 2D18	1.0390248	0.9042265	1.0754288	1.0737612	1.0519153	1.1882052	1.301183	0.7957971	1.268232	1.6568328	1.7088546	1.2547759	1.0288837
Phase-1 RCT-48	1.1899564	1.2670841	1.0539795	1.4486871	1.0513483	1.0282046	1.3260736	0.9708968	1.2679728	1.1506265	1.0921	1.3258321	0.9922454
Phase-1 RCT-292	1.0376343	1.044665	0.980729	1.0347557	0.9685224	0.961728	1.1928088	1.1432822	1.107989	0.9690663	1.3243392	0.8971157	1.3037096
Argininosuccinate synthetase 1	1.5379183	1.156935	1.2358634	1.2023311	0.7498106	0.742203	1.1898339	0.7241616	0.7928998	0.7819206	0.8802448	1.3320953	0.5502608
C-reactive protein	0.8982329	0.974672	0.9009916	1.0790579	1.0870641	0.8855428	1.2044594	0.4286051	1.013201	0.8321757	1.003894	0.8920558	0.7495211
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint															
(1)															
Compound-Dose	TAM 50	TAM 50	TAM 200	TAM 200	TAM 200	TAM 200	TAM 200	TAM 200	TAM 200	TAM 200	TAM 200	TAM 200	TAM 200	TAM 200	TAM 200
Animal Number	1448	1449	1457	1458	1459	1460	1461	1462	1463	1464	1465	1466	1467	1468	1469
Liver Toxicity Necrosis Classification	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Gene Name	14593738	0.994506	1.2981797	1.4004896	1.4354622	0.9156674	0.9271267	1.4489881	1.111708	0.9111013	0.8264334	1.0260454	1.0133564	0.8794609	0.8794609
Osteocalcin	0.8924632	0.8978223	0.9138251	1.2253225	1.0666918	1.0247312	0.9725609	0.8514158	0.8794609	0.8794609	0.8794609	0.8794609	0.8794609	0.8794609	0.8794609
Statmin	1.240121	0.9534234	0.8219359	0.9716456	0.9778951	0.9969302	0.9557927	1.5026442	1.1654438	1.0070919	0.9533065	0.9567543	0.9762449	0.9533065	0.9533065
Calpain I heavy chain	1.200068	1.117788	0.9127245	1.0997127	1.0308352	0.9532924	1.5439864	1.5281963	0.9411869	0.9324654	0.9324654	0.9324654	1.111791	0.9324654	0.9324654
Phase-1 RCT-179	0.8184298	0.9235434	0.8627719	0.9611251	0.9168518	0.9745129	1.262224	0.6898616	0.6291339	0.6865631	0.8816875	1.0260454	0.9168215	0.6865631	0.6865631
Phase-1 RCT-107	0.8928534	0.9061007	0.9294655	2.3486657	3.256237	0.9652817	0.7444853	1.9631225	1.4212245	1.2008841	0.9821563	1.4298804	0.9168215	0.9821563	0.9821563
Heme oxygenase	1.9059569	0.8906624	1.1519681	0.9217193	1.865747	1.0875052	1.0512567	2.6205215	1.3550191	1.0468239	0.6652685	1.0022603	0.7051145	0.6652685	0.6652685
Collagen type II	1.116063	0.9591064	1.2628028	1.3537611	1.1366917	1.2769817	1.1115655	1.1021906	1.2140749	1.7022539	1.083994	1.066908	0.9835644	1.083994	1.083994
Phase-1 RCT-81	0.7449634	1.0470785	0.786464	0.902893	0.8546991	0.9416177	1.636076	0.5300259	0.5810583	0.6080548	1.0713592	0.7147573	0.8613526	0.6080548	0.6080548
Glycine methyltransferase	0.7986939	0.8271145	0.9789107	1.1116495	1.2379613	1.061879	1.0984194	1.5585691	1.7701731	1.1240386	0.9734009	1.2863392	0.7893733	1.0984194	1.0984194
Cystatin C	1.0253241	1.125158	0.9789107	1.1116495	1.2379613	1.061879	1.0984194	1.5585691	1.7701731	1.1240386	0.9734009	1.2863392	0.7893733	1.0984194	1.0984194
Melanoma-associated antigen ME491	0.9993551	0.9878506	1.0637678	1.2291349	1.1843611	0.9809233	1.0642656	1.0727811	0.9475151	0.9164777	0.8203623	0.987002	1.0537322	0.9164777	0.9164777
Phase-1 RCT-146	0.9819978	0.9223015	0.8715668	0.9198636	1.0732131	0.9803544	1.031255	1.5400298	1.0568148	0.922807	0.7926624	0.7827887	0.7479537	0.922807	0.922807
Gamma-actin, cytoplasmic	0.8037867	0.9707758	0.8348097	0.9175971	0.8428047	1.0250198	0.9630055	1.3489165	1.3323421	0.8942057	0.9623967	0.8875138	0.8148084	0.9623967	0.9623967
Adenine nucleotide translocator 1	0.731886	0.7346243	0.6887959	0.9775659	1.2343289	1.0576253	1.068372	0.8378807	0.6533549	0.9029239	1.0863493	1.0803072	1.160313	0.8378807	0.8378807
Thymosin beta-10	1.430333	1.5775958	1.147367	0.7453213	0.8133846	0.9964738	1.0385637	0.5989314	0.8256171	0.9029239	1.0863493	1.0803072	1.160313	0.5989314	0.5989314
Insulin-like growth factor I, exon 6	0.8504709	0.8901985	0.9074343	0.9343067	0.8236732	0.9910051	0.9380749	1.121039	1.3304852	1.1084039	1.0097342	0.9380018	0.8547795	1.1084039	1.1084039
Phase-1 RCT-78	0.7245219	1.3203344	0.4880936	0.1667904	0.2628816	0.6841449	0.8633349	0.3571391	0.5107016	0.9298546	1.525689	0.851433	0.9687409	0.9298546	0.9298546
Alpha-2-microglobulin	0.9723513	0.95691	0.8902521	1.0058405	1.0183703	1.0212988	1.04375	1.3271794	1.1933444	1.0164474	0.9724725	1.0568936	0.9137481	1.04375	1.04375
High affinity IgE receptor gamma chain (FcεRIγ)	1.1364577	1.0452857	1.0040091	1.379838	1.2884774	1.3909622	1.1000795	1.3909442	1.3797946	1.4439598	1.168827	1.0262003	1.0305756	1.3909622	1.3909622
60S ribosomal protein L6	1.3055383	0.9447782	1.0268514	1.5591253	1.6776943	1.0705163	1.1403268	1.0545791	0.9733308	0.9872382	0.9872382	0.9872382	0.9872382	0.9872382	0.9872382
IgE binding protein	1.1078854	0.9743836	1.0691253	1.1294034	1.0999261	1.0461075	1.0888325	0.8363415	0.6558974	0.9817654	0.8018712	0.8316891	1.0175987	0.8363415	0.8363415
Phase-1 RCT-149	1.2024767	1.1388794	1.0354841	1.4142562	1.7224123	1.2299699	1.086355	0.8542774	0.800182	1.0480701	0.9774064	0.8246214	0.8859156	1.086355	1.086355
Cytochrome P450 2C11	1.1049342	0.9974108	1.0232241	1.3016206	1.4715091	1.0067984	1.0594807	0.9206037	0.7332773	1.0830097	0.7135415	0.8559979	0.8622214	1.0594807	1.0594807
Uncoupling protein 2	0.6940868	1.0416373	0.5264435	0.840332	0.6178884	1.081151	0.9677419	1.5970074	1.7696434	1.7506321	1.0061269	0.9498716	0.942413	1.0061269	1.0061269
Alpha-tubulin	0.9412674	0.7767149	0.9153561	1.0705589	0.9604809	0.9861855	0.9048713	1.335181	0.9701455	0.976837	0.9539892	0.8337507	0.9535222	0.9701455	0.9701455
Stearyl-CoA desaturase, liver	0.2145357	0.2534907	0.7077141	0.5177726	0.2941856	0.9895397	0.8682771	0.3678951	0.1376147	0.7202163	0.8364046	0.4101887	0.5018216	0.3678951	0.3678951
Glutathione S-transferase theta-1	0.8059325	0.7282098	0.9495606	1.2030754	1.0211728	0.9414649	0.8757361	1.1329571	1.0846792	1.3034891	1.0981102	1.0568845	0.974996	1.0846792	1.0846792
alpha-1,2-fucosyltransferase	1.2854008	1.1062969	1.361849	1.304925	1.2047058	1.0356114	0.9731328	0.5549389	0.4950231	0.873508	1.0495801	1.0154439	0.9462336	0.5549389	0.5549389
Phase-1 RCT-138	1.2601048	1.0744886	0.9949279	1.1903229	1.1645329	0.9831702	1.0720646	1.1872942	1.1607027	1.1745614	1.0392828	0.9730983	0.8700951	1.1645329	1.1645329
Phase-1 RCT-295	0.9835571	0.850932	0.8777504	0.9488451	0.8780261	1.0431002	1.041891	1.0777891	0.9756405	1.1394249	1.1056099	1.0672175	1.055248	0.9756405	0.9756405
Phase-1 RCT-164	0.9378017	1.0939037	0.8423506	0.801901	0.8318071	0.9516221	0.9483818	0.8725679	1.04261	1.0104914	0.8613547	1.0061858	0.9722011	0.8725679	0.8725679
Alpha-2-macroglobulin, sequence 2	1.1581177	0.9330702	1.0259082	1.1713793	1.1781676	1.0801238	1.1468211	1.1666142	1.2004524	1.2767831	1.1435353	1.0814078	1.1816713	1.1468211	1.1468211
Biliverdin reductase	1.2435453	0.9381783	1.1862391	1.4580367	1.1774155	1.0320098	0.9432164	0.9711587	0.74546	1.08056	0.8489661	0.9123935	1.0531925	0.9432164	0.9432164
Phase-1 RCT-121	1.0763322	1.0190575	1.0194052	1.2408221	1.417324	0.9719241	0.9880485	1.2298164	0.7879077	0.9539585	0.9411131	1.0112337	0.8958782	0.9539585	0.9539585
Dynamin-1 (D100)	0.9740199	1.0277789	1.0162876	0.9952914	0.8722832	0.9822013	1.0238255	0.9732941	0.9612941	0.9105951	1.084125	1.1034231	1.0238758	0.9732941	0.9732941
Phase-1 RCT-192	0.9990223	0.9543006	1.4717885	1.6355589	1.4334843	1.0567214	1.0327778	1.2512774	1.0400229	0.9161504	0.7457357	0.9496058	0.9017777	1.6355589	1.6355589
Fatty acid synthase	0.4145703	0.3528421	0.731256	0.3082152	0.3268824	0.9290772	0.7255708	2.1333337	0.836983	0.7658497	0.5067422	0.365664	0.429894	0.7255708	0.7255708
Phase-1 RCT-211	1.1190886	0.9323607	0.8689761	0.9075859	0.820717	0.8216912	0.8216912	0.8216912	0.8216912	0.8216912	0.8216912	0.8216912	0.8216912	0.8216912	0.8216912
Ribosomal protein S9	0.8570797	0.9419319	0.8487704	1.1563432	0.9586752	0.9373553	0.568662	1.3916678	1.1614269	1.2477274	0.9118408	1.1167902	0.9628038	0.9118408	0.9118408
NADP-dependent isocitrate dehydrogenase, cytosolic	0.8650084	0.9936969	0.9294804	1.1469747	1.0354586	0.9922367	1.0104167	1.5450094	1.6075084	1.0858914	0.9045271	1.0331832	0.9170674	1.0858914	1.0858914
Phase-1 RCT-57	0.990986	0.9230797	0.8748919	0.808885	0.8346534	0.9094566	0.8687604	0.7432425	1.0549078	0.7981179	0.827848	0.7981179	0.827848	0.8687604	0.8687604
Phase-1 RCT-36	0.76851	0.9833751	0.8977852	0.7931529	0.9221356	0.9834945	0.2438913	0.8751487	0.865177	1.0944167	0.9790632	0.8681491	0.8484848	0.9833751	0.9833751
Anoliponrotein All	0.4179815	0.4438468	0.5425714	0.7554101	0.8247424	0.8416974	0.7469872	0.3368284	0.2961963	0.8484285	0.8772711	0.5781733	0.8311442	0.4438468	0.4438468
Phase-1 RCT-68	1.0384897	1.0096682	1.0047882	1.0575044	1.0417048	1.0083302	1.0496396	1.1516235	1.1310896	1.0762968	1.0065248	0.9807177	0.9807177	1.0496396	1.0496396

Multidrug resistant protein-2	0.8608942	1.0694923	1.1636235	1.2869731	1.2983185	1.1653787	1.1561671	0.783531	0.8906872	1.350017	1.2071443	1.2934626	1.2831712
Phase-1 RCT-39	1.1320313	1.074314	1.2947693	1.1794333	1.4701704	0.9433986	0.9546808	1.1677468	1.2436255	0.9434533	0.965193	1.1930206	0.9912173
NIPK	1.0800157	1.0602266	1.103139	0.916395	1.010523	0.9453876	0.9850822	0.8442537	0.7420584	0.842751	0.8151875	1.0489025	1.1261688
FT-ATPase beta subunit	0.7234207	0.9454686	0.7283472	0.7347103	0.6974873	0.9473243	0.9601538	1.1880019	1.0715568	1.306525	0.9504593	0.9878199	0.9216133
Elongation factor-1 alpha	1.1439074	0.9883912	1.0934901	1.1863534	1.1877654	1.0970662	1.0231618	1.2062154	1.0487128	0.8890588	1.0361814	1.0235607	1.0069522
Phase-1 RCT-24	0.9162975	0.7955263	0.8687344	1.0305171	0.9225913	0.8968765	0.9073364	1.0237733	0.8328719	0.9429517	0.8638887	0.9488863	0.8871829
Beta-tubulin, class I	0.7904047	0.8181679	0.8779704	0.793546	0.7769321	1.1178995	1.0411279	1.4156631	0.7321124	1.2104839	0.9504175	0.819788	0.7366294
14-3-3 zeta	1.0597755	0.9858902	0.967304	1.0626543	1.1434247	1.0240328	1.0694444	1.0776157	0.7334917	0.840305	0.9507824	1.0006263	1.1107637
Alpha-prothymosin	0.706495	1.1078217	0.4709834	0.5235139	0.5037957	1.0703942	0.9518485	1.1349918	1.0438891	1.0749695	1.1085188	0.9385338	0.9492617
Phase-1 RCT-58	2.1073418	2.1768947	1.1684563	2.1270645	2.2197807	0.9506482	0.9881122	1.481894	1.7373236	1.046492	0.7849115	1.2055593	1.3662229
Phase-1 RCT-280	0.9168031	0.9037499	0.9458911	0.8628681	0.511731	0.8493593	1.0476173	0.8525731	1.4169931	0.7921561	1.0671223	0.7354215	1.0087646
Transitional endoplasmic reticulum ATPase	0.773766	0.7471425	0.8644844	0.8909391	0.9419538	0.8470656	0.6997987	1.2042717	0.7800232	0.9357421	0.9708633	0.6144989	0.8456091
Beta-actin	0.9876392	1.00727359	1.1470824	1.2428565	1.1456518	1.0885888	0.8215975	0.7728257	1.0419037	1.4166057	1.0590948	0.9840148	1.0549314
Thioredoxin-1 (Trx1)	0.7203047	1.0005869	0.8615401	0.8011578	0.8816223	1.0908941	1.0398746	1.0105418	0.7178175	0.9551379	1.1034807	0.9864789	0.9400093
Phase-1 RCT-174	0.7893684	1.1076013	1.1101569	0.8982226	1.034017	0.8470524	1.0229468	0.5992897	0.7499123	0.893597	0.7804146	0.8156843	0.9537994
Beta-actin, sequences 2	1.1426961	0.9232483	0.865861	0.9696283	0.8710662	1.2114725	1.1189235	0.6916003	0.593252	0.7499123	0.893597	0.7804146	0.8156843
Phase-1 RCT-109	0.839142	1.0351454	0.8838709	0.9492252	0.8650984	1.0661602	0.9418191	0.9916537	1.077727	0.9897704	0.922289	0.9511279	0.9826002
Hypoxanthine-guanine phosphoribosyltransferase	0.746833	0.9289498	0.8140731	0.8679831	0.8588034	0.86514	0.8060345	0.9251088	0.7473104	0.7851812	0.7247075	0.7778047	0.9285395
Phase-1 RCT-213	1.0197107	0.9896202	0.7695257	0.7774004	0.8004347	1.0244253	0.9440789	1.1492091	0.9635206	0.9421348	0.873502	0.9781903	0.9781903
Phase-1 RCT-260	0.9081009	1.027492	0.9970643	0.876902	0.8575647	0.928856	0.9739584	0.9300445	1.0747064	0.9208704	1.0886773	1.0892514	1.1889211
Phase-1 RCT-12	0.9451977	0.9487128	1.0477113	0.9498872	0.9426997	1.014945	0.9456751	0.8440369	0.7759596	1.0006022	1.0425255	1.0545797	1.0755978
Phase-1 RCT-293	1.1117475	0.9760437	1.2189043	1.2828721	1.4295373	1.2811177	1.0486555	1.4285901	1.181489	1.1877835	0.9795474	0.9179571	1.0324287
Ribosomal protein S8	1.0687653	1.0523475	0.9060161	1.1818401	1.04294	1.9830017	1.4413304	1.3358127	1.2942228	0.9720798	1.4166057	1.0590948	0.9840148
Pyruvate kinase, muscle	1.1414819	0.9613544	1.0311542	1.313831	1.583705	1.1458491	1.0811069	0.859834	0.6784725	0.9130194	0.9712895	1.0607873	1.0701572
Nucleoside diphosphate kinase beta isoform	0.9911986	0.9893928	1.0604186	1.3778448	1.2180124	3.619473	1.1468994	1.1769778	1.0320437	1.1039991	0.7842448	1.0012261	1.0170344
p55CDC	1.1981819	0.9585072	1.1473416	1.4029422	1.3431047	1.163442	1.1482329	0.9509338	0.9757287	1.0986667	0.987465	1.0401602	1.0425576
Phase-1 RCT-156	1.133417	1.0174173	0.9235306	0.9843364	0.8720463	1.1028656	1.0214286	0.9007809	0.9649864	1.1267285	1.0271647	0.882727	0.882727
Ribosomal protein L13A	1.1922925	0.9912565	1.0162385	1.2183995	1.2183995	1.0521591	0.8964088	1.0683368	1.0197995	1.0501573	1.0198532	0.9639279	1.0158812
Phase-1 RCT-258	0.9573999	1.0486726	1.0537394	0.9556746	0.640377	1.4861223	1.2721399	0.7747831	1.0408739	1.581061	1.0387556	0.9590302	0.9112533
Insulin-like growth factor I	0.9196208	1.1197673	0.7439446	0.8710431	1.0048615	1.2503375	1.1907474	1.2920854	1.0949979	1.1068341	1.5310894	1.0460296	1.0043225
Cytochrome P450 3A1	1.3922594	1.2261665	0.9611545	0.9105874	1.028873	0.8140411	0.8900496	0.527055	1.0569272	0.894108	1.4185355	1.2851051	1.3909551
(Ribosomal protein L6)	1.1356888	1.0615621	1.0048615	1.3763187	1.8883315	1.0956348	1.0445176	1.2626771	1.2327434	1.0950508	1.1487874	1.0349285	1.0532159
Organic cation transporter 3	1.1510208	1.0038176	1.05086	1.3669711	0.8883315	1.0956348	1.0445176	1.2626771	1.2327434	1.0950508	1.1487874	1.0349285	1.0532159
Calpain 2	1.0522156	0.9635661	0.972679	1.0597734	1.0738196	1.0276003	1.0685713	1.2473717	1.2163795	0.925193	0.979009	1.0428136	0.973273
Phase-1 RCT-102	0.4908548	0.7049941	0.608601	0.5071515	0.4419672	0.9944223	0.9439189	0.5691357	1.0445414	0.9007846	0.9689459	0.9002422	0.9075255
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	1.0732262	1.0557333	1.0269713	0.863256	0.9454078	0.9032345	1.0038765	0.9505073	1.3903188	0.9560939	1.2667282	1.1360657	1.1095122
Phase-1 RCT-227	0.9086688	1.075981	0.9383043	0.9918468	0.853839	0.8773043	0.9498884	1.2714665	1.8463769	1.2574506	1.0245901	0.9471825	1.1129816
N-hydroxy-2-acetylaminothiourene sulfoxidtransferase (ST1C1)	1.0204064	1.1881144	0.9627996	0.7668895	0.9319807	0.9796603	0.952206	1.0155205	1.5309821	0.9333333	1.0820472	1.1327052	1.0936708
Cathepsin S	0.883688	0.7496163	0.7817898	1.2957855	1.7207108	1.0065002	1.0053391	1.401231	1.4726478	0.934577	0.7541388	1.0306507	0.9008671
Apolipoprotein CIII	0.6747145	1.0837048	0.6867876	0.4220249	0.4788092	1.0736172	0.8787478	0.8709242	1.0050712	1.3195881	0.9484063	0.8971593	1.0066559
Cytochrome P450 2A3	0.5535213	1.158736	0.4606828	0.5629744	1.050471	1.2058908	0.8468744	0.9481984	1.3062721	1.2517292	0.98988619	1.0147828	0.9343553
Cytochrome P450 2C23	0.9823846	1.1085724	0.834084	0.6706258	0.8638299	0.9123831	1.0090829	1.5923204	1.2265053	0.721069	1.0147828	0.9343553	0.9343553
Apolipoprotein C1	0.666046	0.9507824	0.5439099	0.5292881	1.1346854	1.2577755	0.9300898	1.7913048	1.386585	0.9380705	0.9248763	0.8156323	0.8156323
Betaine homocysteine methyltransferase (BHMT)	0.8091702	0.386287	0.3719872	0.4001266	0.3758626	0.706817	1.1833947	0.500097	0.2574582	0.7363536	1.0570852	0.7024548	1.0062121
Paroxonase 1	0.7398151	0.953378	0.7145455	0.7609289	0.6985805	1.2211512	1.1625702	1.2236048	2.1443992	1.815411	1.2592832	1.1042775	1.0238671
Phase-1 RCT-207	1.0170636	0.9752834	0.743731	0.7567015	0.7756136	0.9678954	0.9742462	0.9958072	0.9716872	0.6995072	0.8670599	0.8670599	0.8624671
Cathepsin B	1.0621328	0.9877188	1.189265	1.6034889	1.6336028	1.1190883	0.9642787	1.263461	1.2209727	1.591015	1.0366926	0.9184436	0.9136755
Phase-1 RCT-144	0.9066181	0.9312238	0.9509848	0.8628804	1.0231075	1.0179008	1.250104	1.0949695	0.9897084	0.9641022	0.9434773	0.8873355	0.8873355

Alpha-1 microglobulin/bikunin precursor (Ambp)	1.1373128	1.1587236	1.2586275	1.3297168	1.1302563	1.2679493	1.0719204	1.5047493	1.7301817	2.037957	1.0485048	1.0365838	0.907788
Cyclin D1	0.9348403	1.3525175	0.8962188	0.7241426	0.613678	1.1159302	1.1004775	0.7450429	1.2845975	1.5793718	1.0188611	1.1921045	0.9248729
Presenilin-1	1.3124993	1.4446639	0.9570869	0.5024484	0.4281233	0.9302051	0.7945359	1.4146115	2.113975	1.825675	1.3594123	1.2228777	0.9035695
Protein tyrosine phosphatase, receptor type, D	0.746254	0.7756056	0.8954872	1.310383	1.4961148	1.4479226	1.0701332	1.1051441	1.2854311	1.6857412	1.1559886	1.027252	0.856587
Multidrug resistant protein-1	1.0822426	1.0296369	1.2393705	1.4541641	1.5798556	1.1182388	1.1844878	0.9501221	1.0411536	1.3331015	1.3494302	1.2854148	1.2561107
Cathepsin L, sequence 2	0.7930164	1.0192608	0.9393375	1.2920045	1.4555985	0.9629704	0.9594445	1.0973378	1.0973378	0.8284736	1.2413818	1.1347865	
JNK1 stress activated protein kinase	0.6660007	0.9863885	0.9187028	1.0015393	0.9165434	0.9272003	0.9620226	0.7173917	0.6581589	0.9637426	0.7731888	0.9302982	
Phase-1 RCT-43	0.9904685	1.1037642	1.075554	0.9238983	0.8515441	0.8485259	0.9703776	0.9375008	1.0032583	0.982824	0.7129242	0.8867511	0.8976184
Tissue plasminogen activator	0.8347278	0.9855442	0.6722749	0.6891344	0.7589084	0.9719241	1.0080725	1.0107998	0.90707525	0.9317702	0.9040229	0.9540729	0.9459493
Ubiquitin conjugating enzyme (RAD 6 homologue)	0.9337607	0.9566788	0.8937411	1.1082156	0.9840195	0.868468	0.8935573	1.3842158	1.1766601	0.9601786	0.9699254	1.1418804	1.0497068
Phase-1 RCT-173	0.8589775	0.8849879	0.6844239	0.6756755	0.7045154	0.9716809	0.9067029	0.5898481	0.9516354	1.0032847	0.8746993	0.9034601	
Omitidine decarboxylase	0.8333823	0.8943428	0.7807609	0.9389691	1.0389309	1.05509	1.0664663	1.4692414	0.943773	0.9933765	0.9831134	0.9449068	1.1589149
Zinc finger protein	0.8576682	0.9031288	1.0496286	1.0951008	1.114925	0.9673053	0.8956673	1.1451278	1.15625	0.9926106	1.0491124	1.0424987	1.0412091
CDK108	0.7645742	1.1564428	0.8395077	0.8282324	0.770974	0.9296402	1.0672883	0.6341154	0.7153028	0.9812834	1.3615977	0.7651508	0.9485078
Phase-1 RCT-117	0.8386941	0.9198598	0.9440017	0.8829084	0.9145227	0.9420843	0.9552393	0.9687149	0.8446661	1.053611	0.9343635	0.8664108	1.2631993
Phase-1 RCT 98	0.8993151	0.9278135	0.7410806	0.6535163	0.6650417	1.0280149	1.0432065	1.0249015	1.1598634	0.9155555	0.888707	0.9337544	0.8911132
Aquaporin-3 (AQP3)	0.981334	0.9392362	0.8242095	0.8241132	0.7740592	0.9893837	0.9986408	0.8864218	0.9307104	0.9224774	0.8364621	0.9928454	0.9600801
Cholesterol esterase	0.4491851	0.7886507	0.4640237	0.2294444	0.2911566	1.035995	0.8502219	0.5977835	0.9550474	0.780546	1.133622	1.0753131	1.1480868
Ribosomal protein S17	0.9563243	0.9409508	0.8881791	1.0974078	0.9932396	1.7718953	1.4940748	1.3207366	1.3576534	1.1531808	1.2139524	1.1338438	0.9563918
Poly(ADP-ribose) polymerase	0.8282623	0.8945006	1.037515	1.1394837	1.0765754	0.8901122	0.8488986	1.2909577	0.9093677	1.0727978	1.0088418	0.8888649	1.1209389
Annexin V	1.3045444	1.0267067	1.3376589	2.9444597	2.800858	1.2514539	1.1848403	1.0540233	1.1994355	1.2811431	1.1367648	1.1287917	0.9663305
Phase-1 RCT-33	0.6533312	0.8229727	0.8209217	0.7285351	0.8244256	1.0424186	1.2659005	1.003576	0.9808739	0.9874969	0.9296394	0.7841324	0.8138803
Phase-1 RCT-61	1.2271369	1.2135288	0.9586231	1.2494681	1.2794726	0.9802228	0.9790576	0.9766785	1.1602639	0.9235867	0.8542162	1.0485413	1.1045158
Rafinof dehydrogenase type III	0.938674	1.0538102	0.8218207	0.8187126	0.7824175	0.2867776	0.8637439	1.0727234	1.3407573	0.8930731	1.07287	0.9007706	0.9164097
ATPase inhibitor (rat mitochondrial IF1 protein)	0.6504611	0.908902	0.6816437	0.6439863	0.8787386	1.194452	1.0146937	0.810978	0.989843	1.4050406	0.7990843	0.8251641	0.8249721
Thymidylate synthase	1.2792563	0.9955753	1.1757237	1.2738994	1.2127564	1.0199203	1.0504441	1.0840273	1.0441935	0.9284331	1.1374989	1.0978152	1.0551666
Interleukin-18	1.1416984	1.034199	1.0437804	1.8292411	1.0214472	1.133961	0.9250664	0.9758189	0.9584661	1.0634431	1.1226108	1.072452	
Lecithin:cholesterol acyltransferase	0.9665166	1.1377075	0.8260798	0.9438108	0.9265879	1.245112	0.966056	0.8678079	0.936558	1.2490612	0.9588935	0.836668	0.9173787
Contrapsin-like protease inhibitor (CPI-21)	0.5887824	0.6789883	0.3222411	0.2395016	0.4351147	1.0167259	0.8858113	0.9802772	0.9502073	1.2128198	1.0508431	1.0416751	1.1189729
Proliferating cell nuclear antigen gene	1.0259466	1.0431465	1.0810026	1.3164668	1.1199329	1.029354	1.0256758	0.7944166	0.7591012	0.8536511	0.905107	1.0489548	1.0073432
Phase-1 RCT-230	1.2462212	0.99248	0.9930898	1.0305598	0.991315	0.9982012	0.9852941	0.8204765	0.869012	0.877592	0.9816298	1.0318762	0.9460511
Cytochrome P450 2D18	0.8333483	1.0165128	0.9329941	0.9621029	1.0300053	1.0568754	1.0578743	0.5751232	0.70266	1.1374121	0.7217983	0.6371558	0.7260739
Phase-1 RCT-48	0.8423455	0.7131599	1.2703255	1.5181451	1.247472	0.7625309	0.8119437	0.9738718	0.8543581	1.038529	1.0892698	0.919798	0.970907
Phase-1 RCT-292	1.0804348	0.9795494	1.2376605	1.2968425	1.2679335	0.9502781	0.9318848	0.9442531	1.080346	0.9083062	0.9758478	0.9563883	0.9522948
Arginosuccinate synthetase 1	0.5085136	0.5674616	0.5047304	0.5549544	0.5391616	0.8219738	0.9759047	0.8832215	0.8833464	0.786692	1.0394475	0.840268	0.7138395
C-reactive protein	0.6987783	0.8507592	0.9469596	1.4076234	1.5574603	1.2998095	0.9401329	1.0524763	1.2925609	1.6863599	1.1859386	1.241486	1.2206014
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).													
(2) Compound and dose abbreviations as in Table 1.													
(3) Individual animal number													
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed													
(5) Predictive gene (as in Table 26 and as included in Table 32)													

Table 36. Expression Data for 72 Hour Timepoint (1)			
Compound-Dose	THEO 100	THEO 100	THEO 100
Animal Number	2537	2538	2539
Liver Toxicity Necrosis Classification	no	no	no
Gene Name			
Osteocalcin	0.9439873	0.8655471	0.7951747
Stathmin	1.0473934	0.7306858	0.9803336
Calpastin I heavy chain	1.022197	0.9487607	0.9281914
Phase-1 RCT-179	0.7392051	0.7075132	1.0304589
Phase-1 RCT-107	1.0369701	1.0529628	0.7803582
Heme oxygenase	1.0238734	0.9599314	1.1038265
Collagen type II	1.8943336	1.3538807	1.251764
Phase-1 RCT-81	1.05673	1.0900862	1.0285593
Glycine methyltransferase	0.5229387	0.6572288	0.5909227
Cystatin C	1.0357397	1.2965428	1.2420752
Melanoma-associated antigen ME491	0.9671821	1.0277623	0.9946756
Phase-1 RCT-146	1.2048289	0.996078	1.131492
Gamma-actin, cytoplasmic	0.8132638	0.5515886	1.027878
Adenine nucleotide translocator 1	1.3132001	0.8729637	0.782738
Thymosin beta-10	1.2219738	0.5952493	1.2089348
Insulin-like growth factor I, exon 6	1.154791	1.0983737	1.3965996
Phase-1 RCT-78	0.9876971	1.1144838	0.9393693
Alpha-2-microglobulin	0.3331187	0.5469285	0.427111
High affinity IgE receptor gamma chain (FcεRIγ)	0.8164414	0.9539121	0.9090734
60S ribosomal protein L6	0.6738533	0.7008138	0.8665998
IgE binding protein	0.9677091	0.9348605	0.9215578
Phase-1 RCT-149	1.0295757	0.9837844	0.9470285
Cytochrome P450 2C11	1.6314487	1.3571059	0.5251365
Uncoupling protein 2	1.2355278	0.7179713	1.6212734
Cofilin	0.8305797	1.0147372	0.8048567
Alpha-tubulin	1.0399243	0.6905199	1.1230869
Stearyl-CoA desaturase, liver	0.630276	1.1157697	0.8775317
Glutathione S-transferase theta-1	0.9831837	0.9270577	1.0920354
alpha-1,2-fucosyltransferase	1.4730015	1.0915514	1.3621341
Phase-1 RCT-138	0.7398366	1.0567781	0.9487988
Phase-1 RCT-295	0.7257053	0.6487687	0.8825836
Phase-1 RCT-164	1.3517094	1.038816	1.0109447
Alpha-2-macroglobulin, sequence 2	1.13102	1.3109968	1.1914955
Biliverdin reductase	0.869605	0.9387118	1.2132981
Phase-1 RCT-121	1.2320937	0.8341695	1.4746772
Dynamin-1 (D100)	1.0144533	1.1476438	0.9367828
Phase-1 RCT-182	1.0528741	0.9553753	0.7700943
Fatty acid synthase	0.9436895	1.882626	1.2559563
Phase-1 RCT-211	0.841068	0.6686353	0.8915187
Ribosomal protein S9	0.6926329	0.8740033	1.0420064
NADP-dependent isocitrate dehydrogenase, cytosolic	0.7841018	1.0194194	0.8815478
Phase-1 RCT-57	1.1211863	0.7411685	0.6531363
Phase-1 RCT-36	0.913539	0.9742309	0.9274128
Apolipoprotein AII	0.5910544	0.3433045	0.75659
Phase-1 RCT-68	1.0318869	0.8983781	1.0374647

Table 36

Multidrug resistant protein-2	1.1018933	0.9626233	0.9381247
Phase-1 RCT-39	1.3652865	1.0004698	1.1249282
NIPK	1.0524813	1.0016558	1.2817711
F1-ATPase beta subunit	0.860668	1.0039136	0.9499114
Elongation factor-1 alpha	0.7180059	0.5796492	0.8220676
Phase-1 RCT-24	1.2589827	1.2184496	1.0576416
Beta-tubulin, class I	0.8227178	0.6370407	0.7355633
14-3-3 zeta	0.7444238	0.577761	0.8150604
Alpha-prothymosin	0.744374	0.6815612	0.5585668
Phase-1 RCT-58	0.6338905	0.3058283	1.0570168
Phase-1 RCT-290	0.7680283	0.913735	0.63582
Transitional endoplasmic reticulum ATPase	0.9711154	1.3344938	1.1264316
Beta-actin	0.9032397	0.1311615	0.8494183
Thioredoxin-1 (Trx1)	0.8395208	0.8738418	0.9292319
Phase-1 RCT-174	1.0828202	1.1968094	1.0182481
Beta-actin, sequence 2	1.3494225	1.0972925	1.1390389
Phase-1 RCT-109	1.2110715	0.6313873	1.2473781
Phase-1 RCT-154	0.9440532	0.9147956	1.0487375
Hypoxanthine-guanine phosphoribosyltransferase	0.6419978	0.6088522	1.0250294
Phase-1 RCT-213	0.8663518	0.7172951	1.0241956
Phase-1 RCT-260	1.3925517	1.1186498	1.0727962
Phase-1 RCT-12	1.0414817	1.0848569	1.074817
Phase-1 RCT-293	1.0200025	1.001201	0.8838134
Ribosomal protein S8	1.0495459	1.0555949	1.0569206
Pyruvate kinase, muscle	1.088908	0.8300554	0.9823874
Nucleoside diphosphate kinase beta isoform	1.2287878	0.9819934	0.7904844
p53CDC	1.2779105	1.132794	1.2728814
Phase-1 RCT-156	1.0982322	1.1043661	1.487789
Ribosomal protein L13A	1.0774543	0.4741493	1.3689916
Phase-1 RCT-258	1	0.8824961	1.0191926
Insulin-like growth factor I	0.7377167	0.6117908	0.8691485
Cytochrome P450 3A1	0.3578462	1.0022085	0.3829207
(Ribosomal protein L6)	0.863389	0.7575327	0.964162
Organic cation transporter 3	0.990547	0.8587449	0.9020348
Calpain 2	1.0005164	1.0243666	1.0559239
Phase-1 RCT-102	0.7274006	1.251003	0.8768043
Equilibrative nitrobenzylthioinosine-sensitive nucleoside transporter	0.8861675	1.073528	0.8245471
Phase-1 RCT-227	0.474617	0.72932	0.6952624
N-hydroxy-2-acetylaminofluorene sulfoxidase (STIC1)	0.6034035	0.9727364	0.6543506
Cathepsin S	0.6173464	0.81014	0.6929922
Apolipoprotein CIII	0.5398277	0.5240913	1.0778145
Cytochrome P450 2A3	1.0458453	1.1756643	0.8239003
Cytochrome P450 2C23	0.4930278	0.6752747	0.6961957
Apolipoprotein C1	0.7941084	1.1398707	0.8654589
Beta-laine homocysteine methyltransferase (BHMT)	0.4685615	0.6386545	0.5661774
Paraoxonase 1	0.6066976	1.0078434	0.7086661
Phase-1 RCT-207	1.0335116	0.9430994	1.0022372
Cathepsin B	0.5470927	0.7443042	0.773631
Phase-1 RCT-144	1.153113	1.2845808	1.1830295

Table 36

Alpha-1 microglobulin/bikunin precursor (Ambp)	0.9093615	1.0852538	0.8571683
Cyclin D1	0.9528638	1.3603672	1.1007365
Presenilin-1	0.7969687	1.713635	0.9057966
Protein tyrosine phosphatase, receptor type, D	0.5679001	0.8420785	0.8158035
Multidrug resistant protein-1	1.0344088	0.9505376	0.8092104
Cathepsin L, sequence 2	0.7556176	0.5783058	0.9195674
JNK1 stress activated protein kinase	0.5027485	0.6040308	0.5702724
Phase-1 RCT-43	1.551694	1.0393059	1.3955354
Tissue plasminogen activator	1.0530041	0.981935	0.8913652
Ubiquitin conjugating enzyme (RAD 6 homologue)	1.0781785	0.9899912	1.0402838
Phase-1 RCT-173	1.0700729	0.7674911	1.122707
Ornithine decarboxylase	0.8754736	0.714929	0.7554051
Zinc finger protein	1.3728204	0.8851261	0.6589912
CDK108	0.907908	0.9870803	0.9064874
Phase-1 RCT-117	0.9397426	0.907521	0.9056203
(Phase-1 RCT 98)	1.0080622	1.0190796	0.9087404
Aquaporin-3 (AQP3)	0.9209801	1.0895181	1.0166855
Cholesterol esterase	0.44411	1.584328	0.8032869
Ribosomal protein S17	0.9610105	0.93107	1.08941
Poly(ADP-ribose) polymerase	0.8667774	0.8536922	1.0932785
Annexin V	0.9038911	0.8812172	1.0095917
Phase-1 RCT-33	0.7894672	0.8258869	0.9451405
Phase-1 RCT-61	1.3368095	1.0526901	1.1015881
Retinol dehydrogenase type III	0.9768471	0.8667759	0.9493734
ATPase inhibitor (rat mitochondrial IF1 protein)	0.6428102	0.8621808	0.8386619
Thymidylate synthase	0.969693	1.0918765	1.0197808
Interleukin-18	1.4854189	1.2105834	1.1293201
Leclithin:cholesterol acyltransferase	0.62603	0.5657091	0.6882092
Contrapsin-like protease inhibitor (CPI-21)	0.5767232	0.4871935	0.6906761
Proliferating cell nuclear antigen gene	0.8361839	0.9432957	1.1492062
Phase-1 RCT-230	1.4278322	0.9798917	1.3452677
Cytochrome P450 2D18	0.5309774	0.4336672	0.584147
Phase-1 RCT-48	0.7674048	0.8480614	0.8785712
Phase-1 RCT-282	0.8084324	0.9873539	1.0418901
Arginosuccinate synthetase 1	0.7600619	1.1158245	0.8622381
C-reactive protein	0.2513071	0.4425917	0.3153853
(1) Gene expression data for 72 hour timepoint are presented as mean ratio of treatment/control for all 72 hour predictive genes (Table 26).			
(2) Compound and dose abbreviations as in Table 1.			
(3) Individual animal number			
(4) Liver necrosis classification for compound-dose group at 72 h: yes, necrosis observed; no, no necrosis observed			
(5) Predictive gene (as in Table 26 and as included in Table 32)			

Table 36